Towards a holistic understanding of sustainability action: a life history approach

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at the

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Abstract

Sustainability challenges threaten society and the environment with both formal and grassroots initiatives to encourage sustainability action achieving limited success. Contemporary policy approaches to sustainability have focused on individual responsibility, promoting knowledge-deficit models of behaviour change that fail to take into account the context in which people live. This thesis employed a life history approach to holistically examine the relationships between experience, connection and sustainability action. The roles of experience and transformation in changing participants' connection to self, other people and the more-than-human natural world were investigated. A framework was developed from psychology and sociology literatures to holistically elucidate the context in which sustainability action takes place. Thirty-three participants were recruited from educational and environmental sectors across Scotland and England. Life history interview data were thematically analysed with emphasis placed on delineating experiences that participants described as formative, as well as identifying temporal trends both within individual lives and across the dataset.

Experience was instrumental in the creation and reformation of the different ways of knowing required for both connection and action. Extended periods of time spent with people or nature were associated with holistic descriptions of connection. However, the role of infrastructure in supporting sustainability action should not be underestimated. The life history method illuminated the interplay between temporal changes at personal and societal levels. These findings promote the current research agenda into examining sustainability action within the broader context of the life course. Although connection is instrumental in imbuing experience with the meaning necessary to sustain action over a prolonged period, the wider context in which action takes place can supress this effect. If policy is to be conducive to sustainability, it should focus on creating and sustaining environments in which connection to the self, other people and the more-than-human natural world are enabled and nurtured.

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Alexander James Gnanapragasam

To my loving parents,

for shaping my past,

caring for me in the present

and helping me to build my future.

“Someone should be studying the whole system… because no gluing together of partial studies of a complex nonlinear system can give a good idea of the behaviour of the whole”

Murray Gell-Mann (1994, p.36)

Contents

List of figures

List of tables

Abbreviations

CNS Connectedness to nature *survey instrument developed by* Mayer and Frantz (2004)

DECC Department of Energy and Climate Change (UK)

DEFRA Department for Environment, Food and Rural Affairs (UK)

INS Inclusion with nature in self *survey instrument developed by* Schultz (2001)

IPCC Intergovernmental Panel on Climate Change (UN)

JMA John Muir Award (JMT)

JMT John Muir Trust

LETS Local exchange trading schemes

NHS National Health Service (UK)

OED Oxford English Dictionary

ONS Office for National Statistics (UK)

RSPB Royal Society for the Protection of Birds (UK)

SDC Sustainable Development Commission (UK)

SLE Significant life experience

UK United Kingdom *of Great Britain and Northern Ireland*

UN United Nations

UNDP United Nations Development Programme

US United States *of America*

WWF World Wide Fund for Nature (UK)

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Chapter one

Introduction

Sustainability action across the life course

1.1 Conceptual basis

A recent report of the United Nations Development Programme (UNDP) (2014) found humanity to be at its most vulnerable in modern times, with financial instability and increasing environment pressures eroding the social stability the UNDP identifies as crucial to human well being. Additionally, the Intergovernmental Panel on Climate Change (IPCC) (2014) reports that human action continues to drive climate change which has detrimental impacts for both humanity and the more-than-human natural world. Sustainability is concerned with working towards human and planetary well being within biophysical planetary boundaries (Kates, 2010). Incorporated within this consideration is the recognition that the more-than-human natural world sustains and enriches human existence (Carter, 2001; Porritt, 2005). The reports cited above indicate that presently the total sum of human action could be considered to contribute to unsustainability (IPCC, 2014; UNDP, 2014). Bound up in the understanding that the sum of human action currently contributes to unsustainability is the recognition that human action also has the potential to contribute to working towards sustainability (Gardner and Stern, 2002). Initiatives such as the United Nations' (UN) (2015) Sustainable Development Goals illustrate the political and social will to address challenges to sustainability such as social inequality, biodiversity loss, resource use and climate change through changing human action at a variety of scales. This research seeks to understand what encourages, maintains and bounds human action on sustainability. The researcher acknowledges that different sustainability actions have different magnitudes of effect in working towards sustainability (Stern, P.C., 2000; Gardner and Stern, 2002). However this study is not concerned with assessing the magnitudes of specific actions and instead seeks to understand the different conditions and commonalities underlying sustainability action.

Trends in current research into sustainability action often fail to comprehend it holistically and across the life course, instead preferring to focus on specific behaviours at specific points in time (Steg and Vlek, 2009). This is problematic not only because much of this research drives policy approaches to sustainability action (Darnton, 2008b), but also because if the interlinked nature of challenges to sustainability are not recognised, then attempts towards resolution in one area may exacerbate problems in another (Levin, Cashore, Bernstein and Auld, 2012). In addition, as sustainability action can vary temporally owing to changing individual needs and choice (Stern, P.C., 2000; Steg and Vlek, 2009) and changes in the context, elements and structures which constitute action (Shove, 2010a; Shove, Pantzar and Watson, 2012), this reduces the utility of approaches to research and practice which encourage conceptualising sustainability action as an endpoint without recognising their temporal and spatial nuances (Reid, in prep). In response to these challenges, this thesis adopts a life history approach to develop a contextualised understanding of sustainability action across the life course. The life history approach was adopted because it is able to both capture the context in which sustainability actions take place (Hards, 2012) and elucidate temporal trends in these actions (Uzzell, Gatersleben and White, 2010). The life history approach is introduced in section 1.3.

In order to understand what engenders and maintains sustainability action, the researcher looked to trends in earlier studies that sought to capture the determinants of environmental and social action. Prior research into significant life experiences (SLEs) in the field of environmental education sought to establish which life experiences were formative in the lives of people who are committed to addressing environmental issues (Tanner, 1998). These studies identified that experience in natural environments was most frequently attributed to environmental concern and action (Tanner, 1980; Palmer, J.A. and Suggate, 1996; Chawla, 1999). Significant life experience research also reported that experiences of upbringing, education and employment were influential in determining a person's commitment to addressing environmental issues. Additionally, parallel research into the lives of people committed to addressing social issues found similar experiences to be formative (Daloz, Keen, Keen and Parks, 1996; Daloz, 2000). As

similar areas of experience appear to be formative for both environmental and social action, understanding the commonalities and conditions of experience is instrumental in understanding what engenders action on sustainability issues.

Furthermore, research into both social and environmental commitment identifies the importance of connection in determining a person's propensity to act on these issues. Research into the lives of people committed to addressing social issues identified that connection to other people both engendered and maintained action on these issues (Daloz et al., 1996; Daloz, 2000). In addition, contemporary trends in environmental psychology have sought to explain environmental action using the concept of nature connection. Nature connection is defined as the extent to which a person sees their self as part of the more-than-human natural world and it is considered that a higher degree of connection to nature would indicate a greater propensity for a person to act on environmental issues (Schultz, 2002; Brügger, Kaiser and Roczen, 2011; Tam, 2013).

Taken together, the findings from research into SLEs (Tanner, 1980; Palmer, J.A. and Suggate, 1996; Chawla, 1999), lives of commitment to social issues (Daloz et al., 1996; Daloz, 2000) and nature connection (Schultz, 2002; Brügger et al., 2011; Tam, 2013) suggest that understanding the interrelationships between experience, connection and action are crucial in developing a holistic understanding of sustainability action across the life course. Therefore this thesis presents an original, holistic approach to these areas which are often studied in isolation. Prior studies that focus on environmental or social action, and which examine experience, connection and action in isolation fail to appreciate the complexities of the relationships between them, and risk creating further difficulties in their attempts to address sustainability action (Levin et al., 2012). As Gell-Man has stated, "no gluing together of partial studies of a complex nonlinear system can give a good idea of the behaviour of the whole" (1994, p.36).

This introductory chapter establishes the conceptual and methodological basis for the thesis and proceeds as follows: The next section clarifies some of the key terminology used in this thesis. Section 1.2 outlines the research aim, objectives and questions. The following section outlines the life history, its limitations and the

motivation of the researcher (1.3). The final section provides an outline for the thesis (1.4).

1.1.1 Definition of terms

This thesis employs a number of terms which may have different meanings to members of different academic communities. This section seeks to disambiguate and define some of these terms. Further concepts integral to this study such as connection, education, experience, knowing and learning are discussed in chapter two.

Sustainability, environmental and social

The term sustainability is considered to encompass both environmental and social aspects of the challenges facing humanity, however it goes beyond the separation of these issues to recognise they are inherently interlinked (Kates, 2010). As earlier research into how people came to take action to address these problems often focused purely on environmental or social aspects (Tanner, 1980; Daloz et al., 1996), where this literature is discussed the respective terms are employed. In addition, to acknowledge the differences in how people conceptualise sustainability (Cohen, Demeritt, Robinson and Rothman, 1998), participants were asked about their environmental and social actions as this proved much easier for them to comprehend and discuss. However, with regards to the aims and objectives of this thesis and the discussion of its findings, both environmental and social issues are discussed under the heading sustainability to acknowledge the fundamental interrelationships of these challenges.

Action, behaviour and practice

The term action is used to differentiate the conceptual framework established in chapter two from environmental psychology's theories of behaviour (Stern, P.C., 2000; Steg and Vlek, 2009) and sociology's theories of practice (Bourdieu, 1977; Reckwitz, 2002; Shove et al., 2012). Action is not used in the sociological sense of the term 'social action' (Jones, Pip, Bradbury and LeBoutillier, 2011). Following Leiserowitz, Kates and Parris (2006), behaviour is defined as "concrete decisions and actions taken by individuals and groups, which are often rooted in underlying values and attitudes" (414). Practice is considered

to describe the occurrence of action at the confluence of the individual with social totality, without placing emphasis on either of these entities (Giddens, 1984). Therefore when discussing the aims and objectives of this thesis, the term action is used, whereas when referring to psychological and sociological bodies of literature, the terms behaviour and practice are used respectively.

1.2 Thesis aim and objectives

This thesis focuses on studying the life experiences of thirty-three participants from across England and Scotland who are active in addressing sustainability issues. The primary aim of this research is to provide an elaborate account of what engenders, maintains and bounds sustainability action across the life course. Specifically, this study is concerned with developing a holistic understanding of the relationships between experience, connection and sustainability action. To meet the research aim, three objectives and nine associated questions were formulated, these are outlined in Table 1.1.

Table 1.1 Outline of research aim, objectives and questions

Research aim: To elucidate what engenders, maintains and bounds sustainability action across the life course		
Research objective one: To understand how experience influences the understanding of sustainability issues	**Research objective two:** To understand how nature connection is experienced	**Research objective three:** To understand what prevents connection from leading to action
RQ1a: How do the findings of this research relate to previous studies into significant life experiences and lives of commitment?	**RQ2a:** How do participants describe their connection to nature?	**RQ3a:** What elements can be used to describe and understand sustainability actions?
RQ1b: What are the conditions which facilitate the experiences described by this study's participants?	**RQ2b:** What do participants identify as barriers to nature connection?	**RQ3b:** How and why might sustainability actions change across the life course?
RQ1c: To what extent can transformative learning theory conceptualise the life histories described by participants?	**RQ2c:** What does the life history method have to offer the understanding of nature connection?	**RQ3c:** How can the relationship between connection and sustainability action be understood?

Key: RQ, research question.

1.3 Life history approach

This section outlines the life history approach adopted to address the thesis aim and objectives. The limitations and motivation of this thesis are also discussed. This thesis adopted a life history approach to address the limitations of previous research into environmental action, recognising the strength of life history approaches in studying lives of social commitment (Daloz et al., 1996; Daloz, 2000) and structured interview approaches (Chawla, 1999) in studying environmental commitment.

Chawla (1998a) argued that prior to enquiry into SLEs, the majority of studies in the field of environmental education adopted an experimental model, conducting tests prior to and after an educational intervention, in order to establish if courses of environmental education impacted on the behaviour of the participants. Likewise, most research in environmental psychology into environmental behaviour has adopted this model (Steg and Vlek, 2009). These studies are limited in the sense that they pay little attention to both the context and course of the participants' lives (Chawla, 1998a).

This thesis sought to address these limitations by adopting a life history approach in order to explore what engenders, maintains and bounds sustainability action across the life course. Through the engagement of the participant in dialogue with the researcher and the building of a rapport, the life history interview aspires to attain intersubjectivity (Anderson, 2008), where the researcher shares in the participant's understanding of their interpretation of their experiences and the perceived impact it has had upon them (Merrill and West, 2009). In addition, the life history approach enables an understanding of the wider context in which sustainability actions take place (Hards, 2012). Furthermore, this method allows for the understanding of how actions develop over time, and the identification of any temporal variations in the actions and contexts that situate them (Uzzell et al., 2010). These strengths of the life history interview enable the researcher to fully address the thesis aims and objectives.

Initial recruitment was facilitated by the John Muir Trust while a parallel recruitment process was undertaken through people identified as key informants, whose lives evidenced active commitment to addressing sustainability issues. Participants undertook a life history interview with the researcher which lasted between

one and three hours. The life history interview included completion of a sustainability actions inventory (hereafter the actions matrix) developed by the researcher and Schultz's (2001) inclusion with nature in self (INS) survey instrument. These instruments were used to facilitate participant discussion on areas that initially proved difficult for participants to articulate. Nearly forty-seven hours of interview material was transcribed by the researcher, comprising approximately 405 500 words. A rigorous and reiterative coding process was undertaken to arrive at the insights outlined in the results and discussion chapters of this thesis.

In addition, this thesis aims to make a methodological contribution to the study of sustainability action by evaluating the utility of the life history approach to investigating this area. Chapter three provides a detailed discussion of the methodological approach adopted in this thesis. The following sections discuss the limitations and motivation for this thesis.

1.3.1 Limitations

Merrill and West (2009) note that it is important to be upfront about limitations when undertaking life history research so as not to misrepresent findings and potentially mislead the reader. This thesis focuses primarily on investigating the lives of those actively committed to addressing sustainability issues. Therefore the study predominately excludes the life experiences of people less interested and active in this area. However it is acknowledged that an understanding of the ways in which everyone engages with sustainability is crucial in order to further develop modes of understanding and addressing these challenges (Crompton and Kasser, 2009). Nevertheless, this study posits that by working with people interested and active in addressing sustainability issues, this would yield richer insights as it provides a common topic of discussion that they could share with the researcher. This deep insight would better enable the aim and objectives of this research to be met. The methodological implications of this study are discussed further in chapter three, and further discussion of this study's limitations are used to provide the context for policy recommendations and future research discussed in chapter seven.

1.3.2 Motivation

Merrill and West (2009) noted that it is uncommon in social inquiry for researchers to outline their motivations, arguing that this is due to the historical tradition of the academy to distance the self from research in order to achieve objectivity as demanded by the cannons of scientific rigour; this is supported by Lincoln, Lynham and Guba (2011) among others (Bryman, 2008; Moses and Knutsen, 2012). However, when undertaking biographical research it can be both useful and appropriate to discuss the motivation for undertaking the research. This is because the life experiences of the researcher frame the conception and design of their study (Merrill and West, 2009). These life experiences also colour the interpretation of the data gathered, opening the researcher to possible explanations while blinding them to others (Grbich, 2007). Although it may appear unusual that the researcher decided to employ the passive voice in writing this thesis, this was done to centre the reader on the life histories of the participants, giving them narrative agency. Nevertheless, the researcher acknowledges that their own life history has had an impact on the design and conduct of this study.

The academic impetus for this thesis came from initial explorations of the literature on SLEs while undertaking research for a Masters of Science thesis. However, the researcher's lived experience sits behind the relatively short-term academic impetus for this thesis. The researcher is in his late-twenties and has spent most of his life in full-time education. He has volunteered for a variety of educational and social institutions, many closely linked to the Roman Catholic faith which he was brought up in and continues to practice. The researcher is mixed race and was brought up in an outlying borough of London. His immediate family have strong ties to their extended family who originate in northern England and Sri Lanka. The researcher has a profound interest in the natural world and the diversity of life on this one planet. Initial further and higher education interests were focused on biology and ecology. However, the researcher's strong practical commitment to social issues guided his academic studies towards sustainable development. The researcher has long pondered what, if any, of his life experiences and the contexts in which they were situated have led to his interest and action on sustainability issues. These concerns provided the impetus for this research.

Chapter three further discusses these motivations, commenting on how they framed and shaped the design of this study.

1.4 Thesis outline

This thesis proceeds as follows: **Chapter two** develops a conceptual model through which to understand and explore the research aims, and to facilitate analysis and discussion in later chapters towards understanding what engenders, maintains and bounds sustainability action (research aim). Research into SLEs is used as a starting point to review and synthesise academic literature across a number of disciplines towards elucidating the interrelationships between experience, connection and sustainability action.

Chapter three outlines the life history approach adopted by this thesis. Further discussion into the motivations that frame the study design and interpretation is provided. Previous research into SLEs is discussed and methodological critiques outlined in order to develop the life history method adopted by this thesis. The life history method is described, with particular attention paid to the ways in which it works to address the aims and objectives of this study. Explanations are provided for the study design, ethical considerations, sampling strategy, data collection and analysis.

Chapter four establishes how experience influences the understanding of sustainability issues (research objective one). In order to grant agency to the participants' voices and allow the reader to come to their own interpretation of the findings, chapter four begins by providing detailed accounts from the life history interviews. These participants' accounts are organised thematically to examine the similarities and differences to previous research (research question 1a) and delineate what conditions facilitated the experiences described by participants (research question 1b). The final section of chapter four undertakes a narrative analysis to evaluate the extent to which transformative learning theory can conceptualise the life experiences described by participants (research question 1c).

Chapter five elucidates how nature connection is experienced (research objective two). The chapter begins providing a quantitative outline of the sample, comparing participants' INS scores to their actions matrix scores. Participant narratives

are then analysed to examine how nature connection is defined (research question 2a). Barriers to nature connection are outlined (research question 2b) and the contribution of the life history method to investigating nature connection is evaluated (research question 2c).

Chapter six establishes what prevents connection from leading to action (research objective three). The actions framework developed in chapter two is utilised to describe and understand sustainability action (research question 3a). The chapter also examines why sustainability action might change across the life course, highlighting the importance of both transition points in the life course and broader temporal trends (research question 3b). Chapter six concludes investigating the relationship between connection and action, drawing on insight from the previous chapters to conceptualise their interrelationship (research question 3c).

Chapter seven evaluates the extent to which this thesis has met its aim, objectives and research questions, establishing the contribution of this study to scholarly knowledge. This chapter draws together these findings to clarify the conceptual model linking experience, connection and sustainability action outlined in chapter two. The limitations and methodological contribution of this study are discussed and implications for policy and future directions for research into sustainability action across the life course are outlined.

Chapter two

Literature review

Formulating a conceptual framework to study sustainability action across the life course

2.1 Introduction

The problems which face sustainability are complex and can be understood through the framing of 'wicked problems' (Rittel and Webber, 1973). Wicked problems evade recognition and are challenging to resolve, due to the limited availability of information, contrasting perspectives and their ever-changing nature. Climate change is but one of the wicked problems facing sustainability (Banuri, 2009; Levin et al., 2012). Other wicked problems which challenge efforts towards sustainability include poverty, biodiversity loss and gender inequality, amongst many others which the UN Sustainable Development Goals seek to address (UN, 2015). Osorio, Lobato and Del Castillo (2009) liken addressing the complex problems of sustainability to the interdisciplinary field of public health, where adopting a purely biomedical disciplinary understanding of epidemics would prevent these complex real-world problems from being addressed. Interdisciplinary research recognises that different disciplines are able to make valuable contributions to the matters under investigation (Aldrich, 2014). Furthermore, interdisciplinary approaches which explicitly advocate that there are many valid ways to know the matters under investigation (epistemological pluralism), are best-placed to address these complex challenges to sustainability (Miller, T.R., Baird, Littlefield, Kofinas, Chapin and Redman, 2008).

This chapter reviews literature from a number of disciplines and fields of study, in order to develop an interdisciplinary model to holistically conceptualise sustainability action across the life course. Chapter one identified that in order to better comprehend sustainability action, it is crucial to develop an understanding of experience and connection across the life course. Therefore, chapter two elucidates the role of

experience and connection in engendering and maintaining sustainability action. Additionally, this chapter explores what bounds sustainability action, identifying the elements and structures that both enable and limit action on these issues.

The broad subject matter of this thesis calls for succinct treatment of many complex concepts. This should not be taken as an indication that the researcher perceives these ideas to be simple or uncontested. This chapter represents the researcher's best effort to prepare the reader with an understanding of the key concepts that underpin this thesis.

2.2 Ways of knowing

Chapter one identified that enquiry into significant life experiences (SLEs) provided an opportunity to respond to some of the challenges faced by previous research into sustainability action. Prior to introducing and critiquing research into SLEs, the following paragraphs trace some of the difficulties faced by contemporary research and policy on sustainability action to the theory of knowledge that underpins them. Then this section examines how different theories of knowledge allow for a fuller conception of experience, which contributes towards developing a holistic understanding of sustainability action.

Recent United Kingdom (UK) governments' approaches to sustainability action have predominantly been influenced by enquiry in economics and psychology (Darnton, 2008a; Shove, 2010b). For example, psychological enquiry into environmental behaviour emphasises the importance of designing individual approaches that focus on specific environmental behaviours (Darnton, 2008b; Steg and Vlek, 2009). In addition, the recent focus on nudge theory and choice editing (Thaler and Sunstein, 2003, 2009) under the previous coalition and current UK governments illustrates the application of behavioural economics to influence individual behaviour, albeit covertly (Palmer, J.R., 2014; Behavioural Insights Ltd, 2015). The sociologist Shove (2010a) comments that these policy approaches, grounded in economics and psychology, further a particular model of behaviour that places responsibility for environmental action with the individual, whilst absolving government of responsibility in tackling these issues. Furthermore, by constructing environmental behaviour as a matter of desirable attitudes and choices,

there is a lack of recognition that other factors, such as money and time, play a role in the uptake of sustainability action (Shove, 2010a).

Levin et al. (2012) notes that discipline-specific approaches to sustainability action fail to account for the wider context in which action takes place, and are not able to engender and maintain changes in sustainability action over time. The economics and psychology research which underpins policy approaches to sustainability action is underlain by a particular theory of knowledge. Research in mainstream psychology and economics is predominantly underpinned by a positivist theory of knowledge (Moses and Knutsen, 2012). The positivist theory of knowledge proclaims a real physical world which can be fully known (Guba and Lincoln, 1994; Lincoln et al., 2011; Moses and Knutsen, 2012). Positivism uncovers knowledge through "[e]xperimental… verification of hypothesis" (Lincoln et al., 2011, p.100). These definitions of reality, knowledge and its acquisition bound the understanding of sustainability. For example, the idea that the world is composed of people who act rationally within a knowable, physical environment (Moses and Knutsen, 2012), is poorly able to account for the underlying meanings which shape human interaction with one another and the physical world across space and time (Grbich, 2007; Lincoln et al., 2011). Hence when considered on its own, positivist research struggles to account for inherent contextual and temporal variations, which are required to strengthen the conceptualisation of sustainability action. Different theories of knowledge conceptualise knowing and reality in different ways, and their recognition and incorporation into the understanding of sustainability action may lead to a fuller understanding (Meppem and Bourke, 1999). The following paragraphs compare positivism to different theories of knowledge to illustrate how their inclusion can help to work towards a holistic understanding of sustainability action.

In order to discuss different theories of knowledge it is useful to understand the philosophical concepts which constitute them. Theory of knowledge is primarily concerned with questions of reality, knowledge and knowledge acquisition which are termed ontology, epistemology and methodology respectively (Burrell and Morgan, 1979; Guba and Lincoln, 1994; Moses and Knutsen, 2012). The appendices provide a

comparison of the definitions of ontology, epistemology and methodology across the three aforementioned research methods textbooks (A1.1).

In addition to these three core concepts, it is also useful to briefly consider axiology, metaphysics and cosmology as these terms underpin some of the research included in this thesis. Axiology is the branch of philosophy that is concerned with how value is assigned to entities and matters under investigation (Hiles, 2008). Metaphysics is a highly contest field of philosophy which is difficult to define (van Inwagen and Sullivan, 2007). O'Sullivan (1999) considers metaphysics to be the starting point of modern philosophy. Moses and Knutsen (2012) state that metaphysics encompasses questions into the nature of reality, and is composed of ontology, epistemology and methodology. O'Sullivan (1999) states cosmology is the philosophical study of "the origin and structure of the universe" (77). The Oxford English Dictionary (OED) (1893) defines cosmology as "[t]hat branch of metaphysics which deals with the idea of the world as a totality of all phenomena in space and time" (b). Thus the terms cosmology, metaphysics and ontology appear to provide different foci on the discussion of reality. Cosmology focuses on understanding the world in its spatial and temporal totality. In contrast, metaphysics forms an overarching philosophical domain in which general questions of reality are addressed in the sub-field of ontology. For the sake of clarity, this thesis proceeds using the term ontology to signify what a particular theory of knowledge considers reality.

This thesis employs the term paradigm to encompass a position on the theory of knowledge shared by members of a research community, whilst acknowledging that the term paradigm can have alternate meanings (Morgan, 2007). The term world view is used to describe the paradigmatic position held by an individual. In social research, alternative paradigms of enquiry to positivism arose in part due to the dissatisfaction with the application of positivism, an approach developed to study the natural sciences, to study social problems (Guba and Lincoln, 1994). Bryman (2008) identifies the opposing position to positivism to be that of constructivism. The constructivist ontological position asserts that reality is a mental construct in constant renegotiation between social actors (Lincoln et al., 2011). Constructivism holds the epistemological

position that knowledge is subjective and created in relationship with other people (Lincoln et al., 2011). Guba and Lincoln (1994) identify additional paradigms of postpositivism and critical theory, although these are not discussed in detail, their contribution to Heron and Reason's (1997) participatory paradigm (discussed below) should be acknowledged. Table 2.1 summarises the paradigmatic positions of positivism and constructivism, and the participatory paradigm.

Table 2.1 Lincoln et al.'s (2011) selected paradigms in social science research

	Positivist paradigm	**Constructivist paradigm**	**Participatory paradigm**
Ontology	There is one identifiable reality that can be investigated.	Reality is a mental construct which is specific to the individual. Different people hold different perceptions of reality.	Reality is created in the relationship between the mind and the world.
Epistemology	Knowledge is true and objective.	Knowledge is created in engagement with others and surroundings. Knowledge is subjective.	Knowledge is created in involvement with the world. Appreciation of an extended epistemology encompasses dimensions predominantly ignored by positivism. Knowledge is described as critically subjective.
Methodology	The scientific method which encompasses the principles of falsification and generalisation is employed.	The researcher interprets their dialogue with participants, elucidating mental constructs towards achieving a consensus.	Researcher and participants engage in dialogue to come to a shared understanding.
Axiology	Values are excluded and their influence on perception and investigation is denied.	The formative influence of values on the understanding of reality, knowing and the methods employed are recognised.	

Table contents selected and tabulated from: Y.S. Lincoln, S.A. Lynham and E.G. Guba, 'Paradigmatic controversies, contradictions, and emerging confluences, revisited' in N.K. Denzin and Y.S. Lincoln (eds.), *The Sage handbook of qualitative research* (Thousand Oaks: Sage, 2011, pp.97-128).

Previously it was acknowledged that different conceptions of knowing may allow for a fuller understanding of sustainability problems (Meppem and Bourke, 1999). The participatory paradigm advocates an extended consideration of what counts as the focus of academic enquiry (Heron and Reason, 1997). Historically, knowledge has been defined as 'justified true belief' (Lehrer, 2000), and although this definition has been contested (Gettier, 1963), many philosophers of knowledge continue to adopt this position (Lehrer, 2000). Lehrer (2000) classifies knowledge into three types,

propositional, personal and procedural, stating that propositional knowledge which is concerned with facts and the truth has traditionally been the focus of epistemology. Reason (1998) argues that this focus on a narrow, factual definition of truth negates the richness of existence. Instead, Reason (1998) advocates an extended epistemology which brings ways of knowing previously excluded from social enquiry into consideration. The inclusivity of Reason's (1998) extended epistemology led the researcher to adopt it as a holistic approach to conceptualising knowing throughout the thesis. Table 2.2 notes the parallels between Reason's (1998) extended epistemology and philosophical (Lehrer, 2000) and psychological (Schultz, 2002) dimensions of knowledge. The psychological dimensions of knowing are discussed later in this chapter.

Table 2.2 Reason's (1998) extended epistemology and comparative dimensions of knowing in philosophy and psychology

Extended epistemology (Reason, 1998)	**Description**	**Philosophical dimension (Lehrer, 2000)**	**Psychological dimension (Schultz, 2002)**
Propositional	Knowing of ideas, facts and theories.	Propositional	Cognitive
Experiential	Knowing that develops through intimate, first-hand engagement with a phenomena[1].	Personal	Affective
Practical	Knowing how to do something such as a competence or skill.	Procedural	Behavioural

Notes: [1] Reason (1998) asserted that 'presentational' knowing emerges from experiential knowing.

Table compiled by the researcher from Reason (1998, 44) and supplemented with insight from Lehrer (2000) and Schultz (2002).

The prevailing social science research paradigms outlined in Table 2.1 consider the mind to be the interpreter of knowledge it has created (constructivism) or gleamed from the world (positivism) (Lincoln et al., 2011). In contrast, Heron and Reason's (1997) participatory paradigm considers reality to exist and knowledge to be created in the relationship between the person and the wider world. These holistic, relational conceptions of knowing and reality appealed to the researcher as they do not privilege one explanation of circumstances above another, instead acknowledging that it is the totality of the matter under investigation that is important.

Heron and Reason (1997) recognise the influence of the social anthropologist Bateson (1972) on their formulation of the participatory paradigm. Bateson's (1972) conception of the ecology of mind can be observed in the relational aspect of the participatory paradigm. Bateson (1972) asserted that knowing is created at the interface

between the organism (body and mind) and the environment; Bateson (1972) terms this interface the ecology of mind (Figure 2.1). Bateson (1972) contended that "information processing—is not limited by the skin" (p.322), but that knowledge inheres in the sensation of difference along a pathway created by the senses into the environment.

Figure 2.1 Bateson's (1972) ecology of mind (taken from Ingold, 2000, p.18)

Notes: In the illustration provided by Ingold (2000, p.18) the organism is represented by the dashed line as the seat of the mind (BRAIN) which engages in sensory commerce (illustrated by the arrow) with the environment (WORLD). The ECOLOGY OF MIND occurs at the interface between the organism and wider world.

Figure redrawn from: T. Ingold, *The perception of the environment: essays on livelihood, dwelling and skill* (Abingdon: Routledge, 2000, p.18).

It is this sensation of difference at the interface of the mind and body which creates and reforms knowing, that this thesis considers to be experience. This all-encompassing definition of experience as a person's "sensory commerce… [and] general engagement with the world" (Winch and Gingell, 2008, p.81) is influenced by the work of the educationalist Dewey (1917). Shove and her colleagues (2012) propose a succinct conception of experience which this thesis adopts. Shove et al. (2012) state "experience is best understood not as an outcome of events and intentional actions, but as an ongoing process or flow" (p.5). It should be noted that this study considers experience, knowing and action to be complex and interconnected, with these terms giving differing

focuses on the matters under investigation (akin to the distinction made between cosmology, metaphysics and ontology above).

This thesis utilises experiential learning theory to conceptualise how knowledge is created, revised and transformed through first-hand engagement with what is being known (Kolb, 1984; Kolb, Boyatzis and Mainemelis, 2001). The researcher contrasts experiential learning with what he has termed didactic learning. Didactic learning is learning through second-hand experience, such as receiving academic instruction or information on a matter (Stavenga de Jong, Wierstra and Hermanussen, 2006). This simplistic conceptualisation of learning parallels the information-deficit model which many environmental behaviour change initiatives have assumed in the past (Kollmuss and Agyeman, 2002). Didactic learning is also encompassed in the concept of schooling introduced later in this chapter.

Experiential learning theory can be described as a constructivist theory of learning (Fry, Ketteridge and Marshall, 2009). Constructivist theories of learning discuss how knowledge constructs (schema) which exist in the mind are formed, strengthened, revised and transformed through a variety of processes (Gray and MacBlain, 2012). The researcher acknowledges that experiential and transformative learning theories (discussed below) are constructivist theories of learning, and as such may not be considered compatible with the relational epistemology and ontology advocated by Bateson (1972) and Heron and Reason (1997). This is because a consideration of an epistemology which unites experience, knowing and reality at the interface of the organism and environment, purport that the schema involved in constructivist theories of learning do not exist (Ross and Mannion, 2012). However, the researcher employs the essence of these learning theories, situating their construction and revision of knowledge in experience and reality at the interface of the organism (body and mind) with the environment. In the recognition that experience plays a role in creating knowledge which can influence future action, this research drew inspiration from enquiry into SLEs in the field of environmental education.

2.3 Significant life experiences

Since its inception in the early 1980s, research into SLEs has asserted that extended time spent in natural environments plays a crucial role in fostering environmental action (Chawla, 1998b; Tanner, 1998). Tanner began his investigations into SLEs in the late 1970s, sending open questionnaires to three environmental organisations in the United States of America (US) (Tanner, 1998). Tanner was interested in identifying what led his participants to display "active and informed citizen[ship]" (Tanner, 1980, 20) on environmental issues through their committed involvement to environmental organisations. Tanner (1980) received forty-five responses and described his analytical process as conservative, only delineating a condition of experience if a participant explicitly stated it. Thirty-five of Tanner's (1980) respondents asserted that they considered regular experiences in the outdoors, predominantly in childhood, to have been the cause of their activity on environmental issues. The results from his initial study can be found in the appendices (A1.2, A1.3).

Throughout the 1980s and 1990s, research into SLEs grew with notable contributions from doctoral research and peer-reviewed articles across the world (Tanner, 1998). In the UK, J.A. Palmer (1993; Palmer, J.A. and Suggate, 1996) sought to understand if Tanner's (1980) original research was relevant thirteen years on, and if the findings from the US matched those in the UK. J.A. Palmer (1993) developed her initial descriptive analysis in a research paper with her colleague Suggate (1996). J.A. Palmer (1993) sent an open questionnaire to an environmental education organisation in the UK and received two-hundred and thirty-three responses (results summarised in A1.2, A1.3). J.A. Palmer (1993) employed a seven-item environmental behaviours checklist as a method of confirming that her participants engaged in environmental behaviours.

Although J.A. Palmer and Suggate (1996) broadly described their findings as paralleling those of Tanner's (1980) original study, they note some striking differences in formative experiences discussed between older and middle-aged participants, and younger participants. For example, J.A. Palmer and Suggate (1996) noted that participants aged over fifty were more likely to describe outdoor and nature experiences as formative than younger participants. Participants aged over thirty were also more

likely to describe being members of non-activist groups, whereas participants under thirty were more likely to be members of activist environmental groups (Palmer, J.A. and Suggate, 1996). In addition, participants aged under fifty mentioned the influence of the media more than participants aged over fifty (Palmer, J.A. and Suggate, 1996). Like Tanner (1980), J.A. Palmer and Suggate (1996) found that participants mentioned other people and education as being particularly formative. J.A. Palmer and Suggate went on to lead a number of cross-cultural studies into SLEs which found striking similarities across the globe (Palmer, J.A., Suggate, Bajd, Hart, Ho, Ofwono-Orecho, Peries, Robottom, Tsaliki and Staden, 1998a; Palmer, J.A., Suggate, Bajd and Tsaliki, 1998b; Palmer, J.A., Suggate, Robottom and Hart, 1999). However, this work came under sustained criticism which is discussed below.

Earlier research into SLEs primarily adopted an enumerative approach, converting open questionnaire responses into numerical data which was then analysed (Tanner, 1980; Palmer, J.A. and Suggate, 1996). In contrast, Chawla (1999) undertook structured interviews with fifty-six environmentalists in the US and Norway. Although Chawla (1999) enumerated her responses, she also engaged in a narrative analysis of the interviews, tracing life paths into environmental action. Akin to J.A. Palmer et al.'s (1998a; 1998b, 1999) cross-cultural research, Chawla (1999) noted that similar conditions of experience were identified by those active in addressing environmental issues in different parts of the world. Tanner's (1980), J.A. Palmer and Suggate's (1996) and Chawla's (1999) research papers were chosen to form the basis for comparison to the findings of this thesis, as these papers were broadly illustrative of the trends in SLE research. Comparative summaries of these findings are provided in the appendices (A1.2, A1.3).

In the late 1990s, research into SLEs came under sustained criticism from other researchers in the field of environmental education (synthesis provided by Gough, S., 1999). Theoretical criticisms are addressed in the following sections, whereas criticisms pertinent to the methodology are addressed in chapter three. Central to the development of this research were the criticisms that SLE research oversimplified its conceptualisations of experience and action (Gough, A., 1999; Gough, N., 1999; Gough,

S., 1999). Nevertheless, prior research into SLEs is relevant because it sits at the interface of how the interaction between experience, connection and action is understood. The following sections address these criticisms of oversimplification. The next section employs learning theory to develop a nuanced understanding of the relationship between experience and knowing on sustainability issues (research objective one). Section 2.5 draws on enquiry into the fields of deep ecology, ecopsychology and environmental psychology to enquire what nature connection is and how it is experienced (research objective two). The penultimate section in this chapter (2.6) utilises psychological theories of behaviour and sociological theories of practice to develop a fuller understanding of sustainability action (research objective three). The concluding section (2.7) draws these ideas together, proposing a conceptual model towards developing a holistic understanding of sustainability action.

2.4 Experience and transformation

Significant life experience research came under criticism for its oversimplification of experience (Gough, A., 1999; Gough, S., 1999). S. Gough criticised what he interpreted as an overly simplistic, linear relationship between experience, education and action. Chawla (2001) provided a systematic response to the criticisms levelled by S. Gough (1999) and others. Chawla (2001) noted that Tanner (1998) himself conceded the original aim of his research, to inform environmental education, gave the impression that he assumed a linear relationship between these concepts (Tanner, 1980). However, later research has been cognisant of this (Chawla, 1999; Chawla and Cushing, 2007). This strand of criticism led the researcher to question to role of education in experience, and develop a broader understanding of how life experience creates and changes knowing and action on sustainability issues. This section proceeds on the assumption that experience bears some relationship to knowing and action, but that this relationship is complex (Ingold, 2000). The following paragraphs begin to unpack the relationships between these contested concepts to establish the grounds from which this research can proceed.

Previously, experiential learning was introduced as the process by which a person constructs knowledge through reflection and application of first-hand, sensory

engagement with the environment (Kolb, 1984; Kolb et al., 2001). Knowledge is described as the ideas, feelings as skills held by a person (Reason, 1998; Lehrer, 2000) which can be broadly classified into philosophical and psychological dimensions (Lehrer, 2000; Schultz, 2002). However, it should also be recognised that these dimensions do not exist in isolation of each other (Bloom, Krathwohl and Masia, 1964 cited in Nicol, 2014; Lehrer, 2000). Learning is the process by which these ideas, feelings and skills are created and changed (Itin, 1999; Lehrer, 2000). Teaching is the process by which learning and knowing are intentionally influenced (Winch and Gingell, 2008). Knowing, learning and teaching are not unique to education but they are integral to it. Education is an intentional process of developing a person to their fullest potential (Sterling, 2001; Orr, 2004a; Winch and Gingell, 2008; Smith, 2015). Education can take place in a variety of settings both formal and informal, and can involve one or more persons (Itin, 1999; Marsick and Watkins, 2001).

Figure 2.2 Pictorial representation of the relationship between experience, knowing, learning, teaching and education

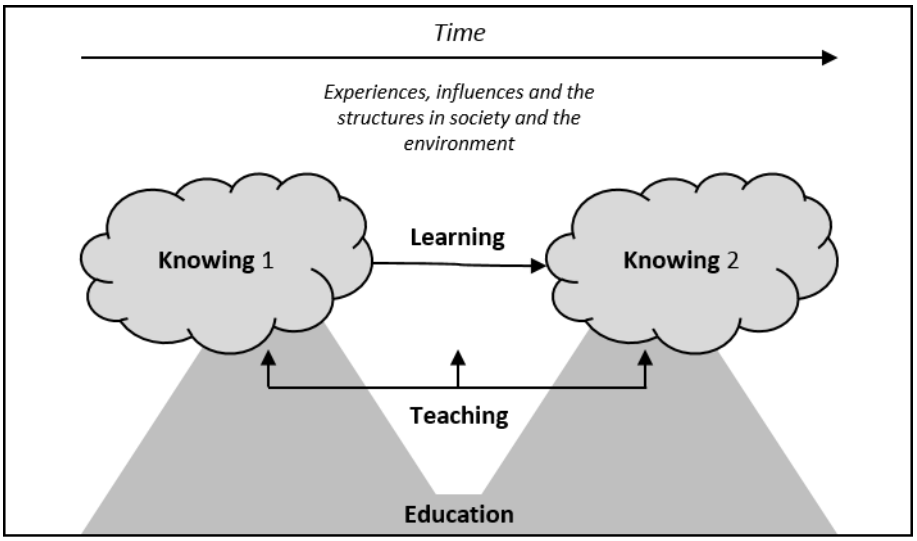

Figure drawn by the researcher summarising the relationships between experience (Kolb, 1984; Kolb et al., 2001), knowing (Reason, 1998; Lehrer, 2000), learning (Itin, 1999; Lehrer, 2000), teaching (Winch and Gingell, 2008) and education (Sterling, 2001; Orr, 2004a; Winch and Gingell, 2008, Smith 2015).

Although the researcher acknowledges that other people play a significant role in learning and that there are a variety of social learning theories that can address this (Wenger, 2003), this research's aim to understand changes in thought and action at an individual level across the life course, led the researcher to utilise individual theories of

learning. Figure 2.2 pictorially represents the relationship between these concepts. However, education should not be confused with schooling, which is concerned with the didactic transfer of information from teacher to learner (Freire, 2000; hooks, 2003; Smith, 2015).

The assumption of a linear relationship between education or instruction and particular behavioural outcomes is more akin to the definition of schooling offered above. It supposes an information-deficit model of behaviour change, which has plagued environmental policy for some time, as it is unable to account for individual differences in experience and the wider effects of context (Blake, 1999; Kollmuss and Agyeman, 2002). The information-deficit model of behaviour change fails to recognise that individual differences can impact the process of learning and its interpretation through the senses (experience), constructing different knowledge and action; indeed this was the criticism raised of SLE research by A. Gough (1999). Additionally, N. Gough (1999) noted that SLE research failed to identify conditions which bound both formative experiences and the assumed resulting action. In order to account for these individual differences and wider contexts, transformative learning theory was employed to elucidate these matters (Mezirow, 2000; Taylor, 2008). Theoretical work based on Mezirow's (2000) articulation of transformative learning theory was primarily selected to explore how experience resulted in changes in sustainability action. This was because Mezirow's (2000) work explicitly focuses on the role of experience, through critical reflection, in reforming thought and action.

Transformative learning theory stems from the work of Mezirow (1978) who studied women returning to education in the US during the 1970s. Mezirow (1978) found that disorientating dilemmas arising from participation in adult education resulted in fundamental changes in how people understood themselves and their world. Mezirow (2000) described this process as perspective transformation, acknowledging the influence of the critical pedagogue Freire (2000) and his concept of critical consciousness on Mezirow's own work. In Mezirow's (1978) initial work, he noted the importance of the disorientating dilemma in changing a person's perspective. A disorientating dilemma is an "externally imposed" (Mezirow, 1990, p.13) event which

renders a person's current way of understanding invalid. Transformative learning occurs when the person is able to develop a new understanding of the world which can accommodate this dissonance. In this sense, transformative learning is described as developmental, as a person moves to a more dependable understanding of their self and the world (Mezirow, 2000; Taylor, 2008). Parallels can be noted between Mezirow's disorientating dilemma and Kasser's (2013) concept of disruptive experiences.

Figure 2.3 Mezirow's (2000) conception of knowledge and transformation at the interface of organism and environment

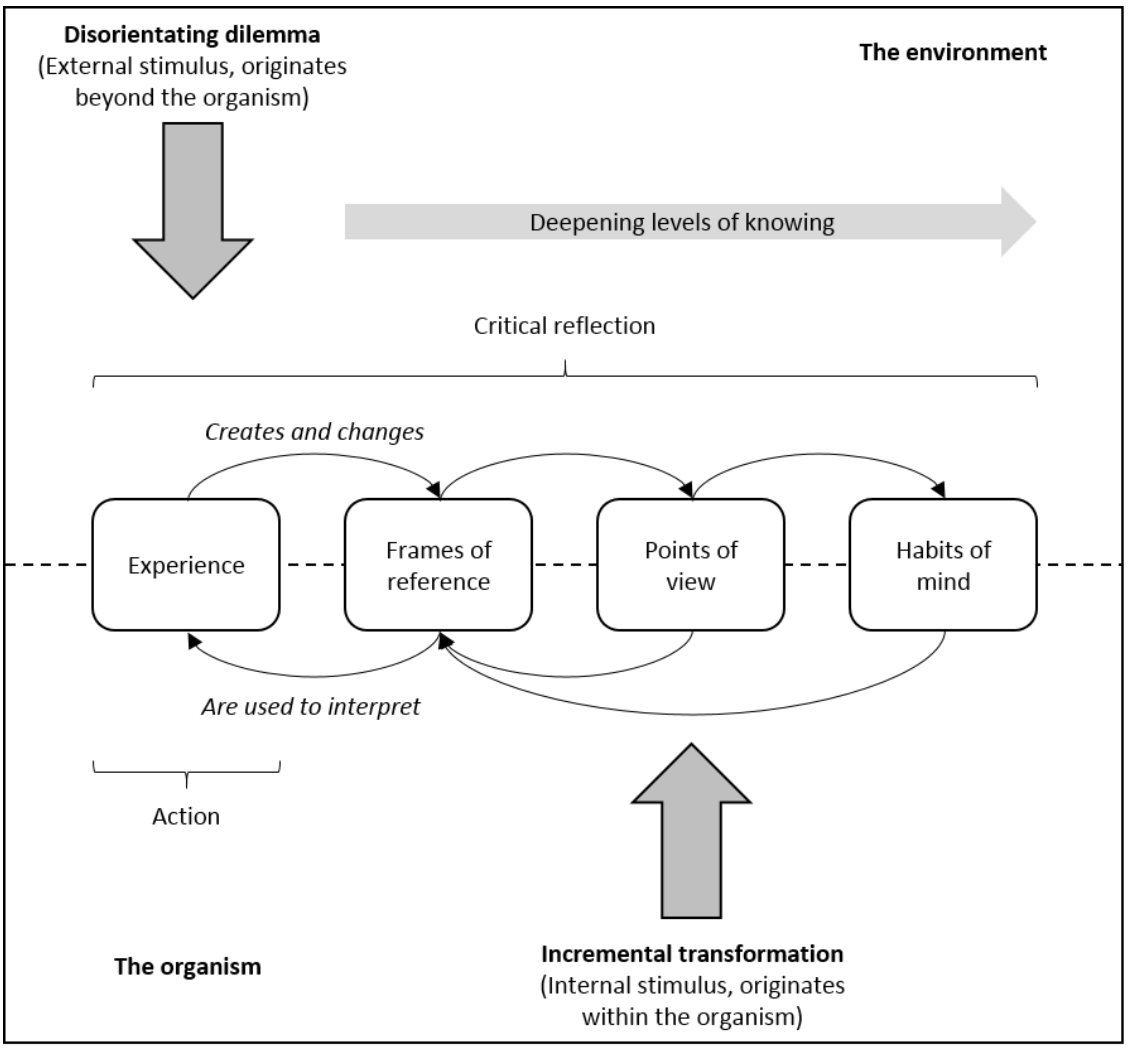

Figure drawn by the researcher depicting Mezirow's (2000) conception of knowledge imposed at the interface of the organism and environment (Bateson, 1971) with Sterling's (2011) consideration of deeper levels of knowing indicated.

Kasser (2013) developed his concept from post-traumatic growth theory (Tedeschi and Calhoun, 2004) to explain how distressing life events can result in a person re-evaluating their understanding and action on sustainability issues. Mezirow's (2000) later work

incorporated the idea of incremental transformation, whereby smaller changes in knowing over time can accumulate to result in a transformation in how a person understands and acts in the world.

Mezirow (2000) conceived that knowledge was held in different types of schema (points of view and habits of mind) which a person brings to bear as a frame of reference when addressing particular experiences. Mezirow (2000) differentiated between learning where a person uncritically adds to their schema, and transformation in which their schema dramatically shift to cope with an experience (as the result of a disorientating dilemma) or as a result of incremental changes to their schema over time. Figure 2.3 situates Mezirow's (2000) conception of knowledge at the interface of the organism and environment. In order to better understand how transformative learning theory is able to provide an explanation of how a person's understanding and action on sustainability change over time, Bateson's (1972) orders of learning which formed the basis for Sterling's (2001, 2011) orders of change are both discussed.

Sterling (2001) developed his ideas on transformative learning from the "planetary" (Taylor, 2008, 9) perspective on the theory which moves beyond Mezirow's (1990, 1997) focus on the individual, to address problems of education and sustainability in their totality (O'Sullivan, 1999). Sterling (2011) describes a nested, reciprocal relationship between action and understanding in which "deeper perceptions… influence… more immediate ideas and they, in turn, affect everyday thoughts and actions" (21).

Sterling (2001, 2011) drew on Bateson's (1972) orders of learning when describing the difference between transformative learning and lower orders of change. Table 2.3 describes these different orders of learning and change, which are used to identify if transformative learning has taken place. Bateson (1972) notes that distinguishing between Learning II and Learning III can be difficult. However, he suggests that the maintenance of the change in knowing evidenced in action may indicate if Learning III has taken place. This concurs with Mezirow's (2000, 2003) later articulations of transformative learning theory and with other researchers in adult (Taylor, 2008), emancipatory (Freire, 2000) and sustainability education (O'Sullivan, 1999; Sterling,

2001, 2011) who assert that transformation has only taken place if the change in understanding and action is permanent. Additionally, as Bateson (1972) suggests that deeper levels of knowing can be replaced without Learning III, perhaps what also separates it from the lower orders of learning is a requirement for self-realisation. Indeed Mezirow (2000, 2003) considers self-realisation to be a requirement for transformative learning.

Table 2.3 Bateson's (1972) orders of learning and Sterling's (2001, 2011) orders of change

Bateson's (1972) orders of learning	**Sterling's (2001, 2011) orders of change**	**Description**
Learning I	First order change	Bateson (1972) describes Learning I as error correction. Sterling (2011) notes that first order change is concerned with becoming more efficient and effective. Sterling (2001) describes it as "change and learning [that] takes place within accepted boundaries" (p.15).
Learning II	Second order change	Sterling (2001, 2011) notes that second order change involves critical reflection in which deeper levels of knowing can change.
Learning III	Third order change	Sterling (2001) describes third order change as "see[ing] things differently" (p.15) and 'transformative' (2011). Bateson (1972) notes that the articulation of Learning III can be difficult due to it being concerned with "matters… totally beyond the reach of language" (p.220).

Table compiled by the researcher from Bateson (1972) and Sterling (2001, 2011).

In order to understand the qualities of experience that engender transformation on sustainability thought and action, Daloz's (2000) application of transformative learning theory to biographical research is examined. Daloz (2000) identified four conditions of experience which he deemed necessary for transformation in thought and action on social issues to take place and be sustained; these are outlined in Figure 2.4.

Figure 2.4 Daloz's (2000, pp.112-117) four conditions for transformation

- The presence of the other.
- Reflective discourse.
- A mentoring community.
- Opportunities for committed action.

Daloz (2000) identifies the presence of the other as crucial if transformation is to take place. Daloz (2000) drew on his earlier work with his colleagues Keen, Keen and

Parks (1996), in which they conducted a life history study of over one-hundred people committed to addressing social issues. In their earlier work, Daloz et al. (1996) noted that the experiences common to all their participants were characterised by their recognition of their commonality with other people. Daloz et al.'s (1996) research into lives of commitment to social issues is summarised and thematically compared to SLE research in the appendices to provide a basis for comparing the findings of this thesis to previous research (A1.3). Daloz's (2000) recognition of the importance of reflection, and the support of other people in the development of both understanding and action broadly corresponds to Mezirow's (2000, 2003) later writings on transformative learning, which pay greater attention to the contexts in which transformative learning takes place and the support rendered by other people.

Additionally, Daloz (2000) situates disorientating dilemmas as the memorable event (interaction between the organism and the environment) which signifies a transformation in thought and action that has come to the fore of the learner's consciousness. In this way, disorientating dilemmas become part of incremental transformation across the passage of time, which is also expressed in Mezirow (2000, 2003) and later writings on transformative learning theory (Taylor, 1998, 2008). The recognition that experience and knowing characterised by connection plays an integral role in engendering and maintaining action on social issues (Daloz et al., 1996; Daloz, 2000), led the researcher to examine parallel enquiries into nature connection.

2.5 Nature connection

Daloz et al.'s (1996; Daloz, 2000) research cited above emphasises the importance of developing and maintaining connection with other people in engendering and sustaining action on social issues. This section examines how connection influences how people understand and act on their relationships with the more-than-human natural world. As a starting point, definitions of connection from the OED (1989) are presented:

> "The condition of being related to something else by a bond of interdependence, causality, logical sequence, coherence, or the like; relation between things one of which is bound up with, or involved in, another" (3)

> "A personal relation of intercourse, intimacy, common interest, or action; a having to do *with*. Often with *pl.*" (5a)

The term connection gives the sense that two separate entities are related to one another. This raises questions of what is being connected and what are the qualities of this relationship? As this thesis considers the human individual to be an organism in the environment (as per Bateson, 1972), this study considers connection to be the extent to which a person sees their self (body and mind as a unified organism) as part of the human and more-than-human natural world (which is located in the environment). Where the concept of connection to self is discussed later in this thesis, it is in the developmental sense whereby a person moves to a more dependable understanding of their self (as discussed in the previous section).

Although the researcher acknowledges the importance of connection to other people in working towards sustainability, due to contemporary public (Louv, 2009; Griffiths, 2013), policy (DEFRA, 2011), non-governmental organisation (Bragg, R., Wood, Barton and Pretty, 2013; RSPB, 2013) and academic (Brügger et al., 2011; Tam, 2013; Frantz and Mayer, 2014) interest in connection to the more-than-human natural world, the researcher decided to pursue this line of enquiry.

The environmental psychologist Schultz (2002) outlines the origins of research into nature connection, tracing it to enquiry in philosophy, sociology and social anthropology. The ecopsychologist Scull (2008) credits the field of environmental education in pioneering approaches to measure and relate nature connection to environmental behaviour. The work of Peterson (1982; Peterson and Hungerford, 1981), who adopted Tanner's (1980) methodology to identify what she termed environmental sensitivity, can be linked to contemporary investigations into nature connection (Cheng and Monroe, 2012) through the work of her doctoral supervisor (Hungerford and Volk, 1990). Hence, a number of different disciplines and fields of study investigate nature connection (Schultz, 2002; Scull, 2008). The following paragraphs draw on a number of these fields which have varying paradigmatic positions, to establish how nature connection might be conceptualised and what this may mean for sustainability action.

The inclusion of nature in the self is not a novel concept for many of the world's indigenous cultures (Kerr and Key, 2011). However, increasingly urbanised lifestyles in the modern world have been credited with separating humans from the more-than-human natural world (Louv, 2009). Research into nature connection in environmental psychology proceeds on the premise that the more a person identifies with nature, the more likely they are to undertake environmental action (Brügger et al., 2011; Tam, 2013). This research tends to focus on identifying and measuring nature connection schema and evaluating the extent to which they predict related environmental schema and behaviours. The appendices provide a table describing different measures of nature connection (A1.4).

However, beyond this discussion of the importance for people to see themselves as part of nature, research in environmental psychology appears to avoid making claims about the ontological qualities that characterise how people describe their connection to the more-than-human natural world. Therefore, in order to develop a fuller understanding of what conceptions of reality and knowing characterise nature connection, this thesis turns to examine contributions to the understanding of nature connection from ecopsychology and deep ecology.

The field of ecopsychology asserts that the problems with both human and planetary well being can be traced to humanity's "dysfunctional relationship with the natural world" (Scull, 2008, 68). Akin to many emerging interdisciplinary fields of research, ecopsychology's paradigmatic basis is contested (Kerr and Key, 2011; Key and Kerr, 2011b; Fisher, 2013; Kahn, 2013; Pye, 2013). However, the teleological position of ecopsychology is that by moving towards an ecological conception of the self, personal and planetary well being can begin to be addressed (Schroll, 2007).

The concept of the ecological self has its roots in the philosophy of deep ecology (Næss, 1985). Proponents of deep ecology contend that the problem of environmental unsustainability has its roots in the Western world's belief in the primacy of humanity above the more-than-human natural world (Keller, 2008). The philosopher Næss (1973, 1989) coined the term deep ecology to describe an alternative world view from that

which characterised Western, human-centred approaches to understanding their relationship with the natural world.

Næss' interpretation of deep ecology holds the ontological position of metaphysical holism (Keller, 2008). Metaphysical holism asserts that all existence (reality) is intimately interconnected and interdependent. Fox (1991) developed this ontological position, delineating three levels of ecological identity which he termed personal, ontological and cosmological. Fox (1991) describes the personal level as insight gained into the relationship with the natural world based on first-hand experience. From this level, a person can develop a transpersonal ecological identity that at its lower level recognises the self and the wider natural world as all in simultaneous existence; Fox (1991) termed this the ontological level of identification. Fox (1991) termed the highest level of ecological identity the cosmological level which recognises the self and the wider natural world as one "single unfolding reality" (4).

Figure 2.5 The ecological self (taken from Key and Kerr, 2012, p.248)

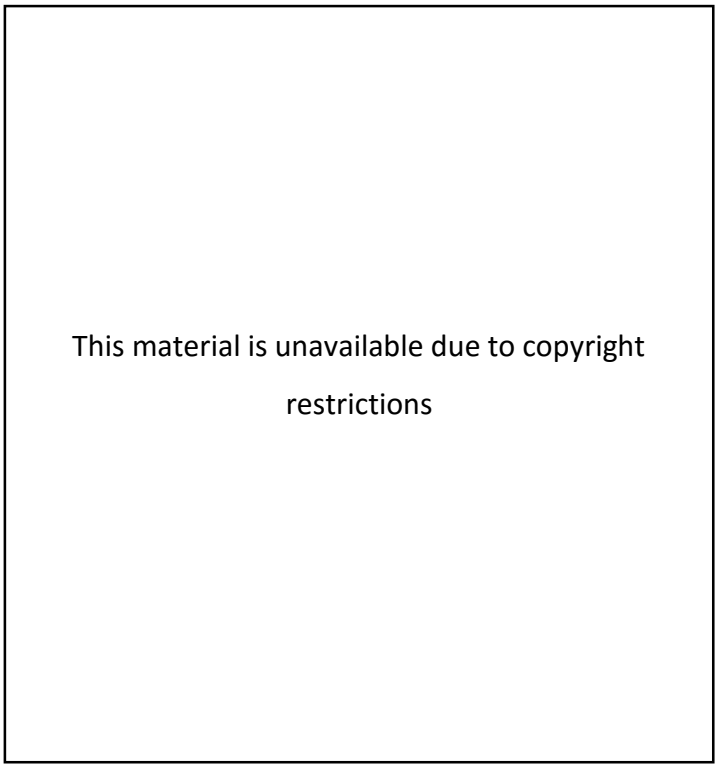

Figure redrawn from: D.H. Key and M.H. Kerr, 'The natural change project' in M.-J. Rust and N. Totton (eds.), *Vital signs: psychological responses to ecological crisis* (London: Karnac Books, 2012, p.248).

Theorists in deep ecology argue that transpersonal identification and valuing of the natural world has a greater propensity to result in concerted action on environmental issues (Næss, 1989; Fox, 1991; Keller, 2008). However, E.A. Bragg (1996) elucidated criticisms of deep ecology's ontological position from ecofeminism, asserting that a caring relationship with a "distinct *other*" (96, author's emphasis) is required to engender environmental behaviour. In their effort to develop a paradigmatic position for the contested field of ecopsychology, Kerr and Key (2011) asserted that its ontological position should be that of connectedness. This ontological position of connectedness parallels the ontological position articulated by Heron and Reason's (1997) participatory paradigm. These relational conceptions of reality preserve boundaries between the self (organism) and the wider world (environment).

Going forward, this thesis conceptualises the ecological self as an ontological relationship beginning at the self, including other people and encompassing the more-than-human natural world. Although perspectives from deep ecology would assert that this maintains divisions inimical to the ecological self (Næss, 1989; Fox, 1991), in order to be able to relate these strands of research to other fields constructed from different disciplinary and paradigmatic standpoints, that undertake research at these different scales, the adoption of this terminology becomes necessary.

This section now examines the qualities of knowing which characterise nature connection. Russell, Guerry, Balvanera, Gould, Basurto, Chan, Klain, Levine and Tam (2013) note that "[t]he effects of nature on learning, cognition and inspiration are often assumed and occasionally documented but have not been systematically assessed" (494). The following paragraphs describe the ways of knowing that characterise nature connection and examine how these ways of knowing might be engendered.

The environmental psychologist Schultz (2002) considers nature connection to have three components, assigning them to psychological dimensions: Connection (cognitive), care (affective) and commitment (behavioural). As noted earlier, these psychological dimensions overlap with the philosophical dimensions of knowing (Lehrer, 2000) and Reason's (1998) extended epistemology. Schultz (2002) terms the cognitive dimension connection, describing it as a person's conception of self. O'Brien and Murray

(2007) also describe information on the world and understanding of the impacts and interactions between the world and humanity to be part of the cognitive psychological dimension of knowing. Schultz (2002) terms the affective dimension caring, noting that it manifests as feelings of concern and empathy. The behavioural dimension of nature connection is termed commitment and encompasses the competencies and decision-making processes to act on these issues (Schultz, 2002). Schultz (2002) considers the primary element of nature connection to be the cognitive dimension, although he also notes that the three components are interdependent, requiring each other to embody connection with nature. This raises the question as to if a person can be described as connected to nature if they do not take any action to protect and conserve the natural environment, and touches on the debate known as the value-action gap (Blake, 1999; Kollmuss and Agyeman, 2002).

In contrast to Schultz's (2002) emphasis on the cognitive component, the environmental psychologists Pooley and O'Connor (2000) suggest that when understanding and promoting nature connection, emphasis should be placed on the affective component. Pooley and O'Connor (2000) state that traditional environmental education and campaigning have focused on addressing the cognitive component of nature connection, through providing information on environmental crises. Research illustrates that if the goal of learning is the provision of information, didactic (or academic) techniques are most proficient at instilling it (Stavenga de Jong et al., 2006). Instead, Pooley and O'Connor (2000) identified that first-hand experience of the natural world engenders the affective dimension of connection, which they found to strengthen environmental attitudes and behaviours. The psychologists Millar and Millar (1996) broadly support this, noting that first-hand experience creates stronger attitudes and behaviour than second-hand engagement. The application of experiential learning theory can help to elucidate how first-hand experience creates knowing (Kolb, 1984; Kolb et al., 2001). Additionally, Stavenga de Jong et al. (2006) also illustrate that experiential learning is well-suited to convey behavioural dimensions of knowing.

This is not to say that didactic learning is explicitly associated with the cognitive dimension of connection and experiential learning with the affective and behavioural

dimensions. Beard (2010) notes that "experiential learning tends to be more active than passive" (p.20) and through its encompassing of physical acts and deep reflection (Kolb, 1984) it creates knowing across the all the dimensions of connection. In contrast, it is the passivity of didactic learning (Freire, 2000), whereby information is merely given to the individual with little action on their part, which appears less effective at instilling connection across the behavioural and affective dimensions of knowing. The relationship between the affective dimensions of nature connection and environmental behaviour is supported by other researchers in environmental psychology (Kals, Schumacher and Montada, 1999; Cheng and Monroe, 2012), ecopsychology (Roszak, Gomes and Kanner, 1995) and philosophy (Gould, 2007). As Gould (2007) states "we will not fight to save what we do not love" (p.40).

This research proceeds on the assumption that connection across all the psychological dimensions represents connection at its strongest which is more likely to engender action on sustainability issues; this study terms this the epistemology of connection. Figure 2.6 places the epistemology of connection at the interface of the organism and environment, illustrating the relationship between experiential and didactic learning, and the ways of knowing.

Figure 2.6 The epistemology of connection at the interface of organism and environment

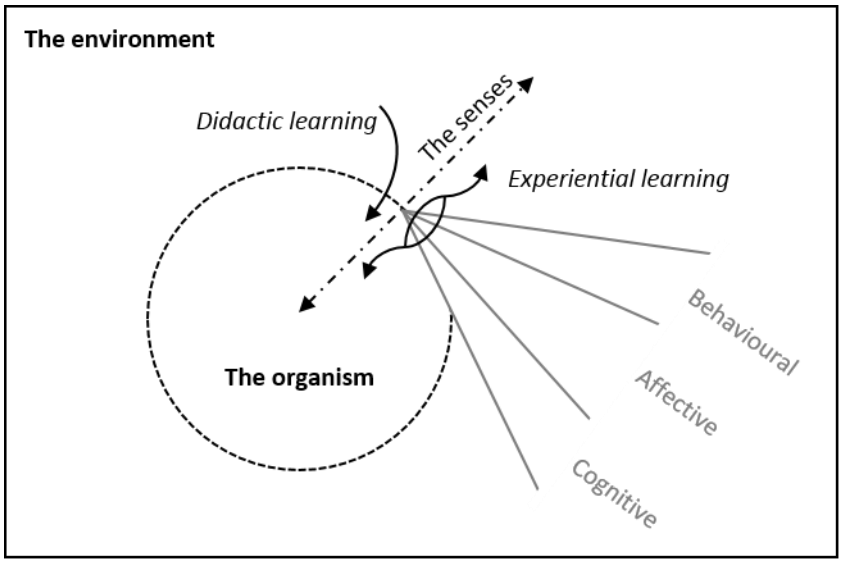

Figure drawn by the researcher, encompassing Bateson's (1972) ecology of mind (adapted from Ingold, 2000, p.18), Schultz's (2002) psychological dimensions of nature connection and Kolb's (1984) experiential learning theory.

The previously discussed ontological relationship that characterises connection is located within the cognitive dimension, although it draws on the other dimensions to be realised in empathy (affective dimension) and action (behavioural dimension). The following section conceptualises sustainability action to develop an understanding of the other factors which enable and limit action on these issues.

2.6 Sustainability action

Significant life experience research was criticised for adopting a simplistic model of environmental behaviour (Gough, N., 1999; Gough, S., 1999). Paralleling information-deficit models of behaviour change which were prevalent at the time (Hungerford and Volk, 1990), SLE research was underlain by the assumption that experience would educate, which in turn would lead to desirable behaviour (Tanner, 1980). This neglected both that experience can be interpreted differently by different people (Gough, A., 1999; Gough, S., 1999) and that a variety of factors beyond the individual's control can affect their ability to act on environmental issues (Gough, N., 1999). Chawla and Cushing (2007) sought to address these criticisms by linking SLEs to environmental behaviour through P.C. Stern's (2000) value-belief-norm theory. This section seeks to extend Chawla and Cushing's (2007) original theorisation to develop a model that can more fully conceptualise sustainability action. Steg and Vlek (2009) define pro-environmental behaviour as, "behaviour that harms the environment as little as possible, or even benefits the environment" (309). This study utilises this definition in its conceptualisation of sustainability action, extending it to account for the well being of the self and other people along with the more-than-human natural world. This section discusses psychological theories of behaviour and sociological theories of practice, employing them to work towards a holistic conception of sustainability action.

Earlier it was noted that the psychological theories of behaviour which have dominated policy approaches to sustainability action fail to take account of the context in which people act (Shove, 2010a). Nevertheless, both the prevalence of psychological theories in research and policy approaches to sustainability (Darnton, 2008b; Steg and Vlek, 2009) with their individual scale of focus in common with the learning theories previously discussed, made their consideration in this study important.

Steg and Vlek (2009) note that research in environmental psychology has focused on delineating the motivations that underpin environmental behaviour while mostly neglecting to research habitual behaviours and the contexts in which environmental behaviour takes place. For example, P.C. Stern's (2000) attitudes-behaviour-context theory of environmental behaviour describes context and habit (along with capability) as determinants of behaviour external to the individual performing the behaviour. The following paragraphs consider research and policy discussions of habits and motivations, focusing on the strand of research into values, in order to establish what this can offer towards developing a holistic understanding of sustainability action.

Habits are behaviours which are "guided by automated cognitive processes" (Steg and Vlek, 2009, 312); simply put they are behaviours which are almost involuntary and spontaneous in character. Reid, Hunter and Sutton (2011) note that most environmental behaviour in and around the home is habitual. Therefore, in order to work to a holistic understanding of sustainability action, it is important to acknowledge these habitual actions. As habits are often preformed almost unconsciously, in order to disrupt them, the behaviour must be brought to the fore of a person's consciousness (Aarts, Dijksterhuis and Midden, 1999). For example, Fujii, Gärling and Kitamura (2001) noted that habitual car users who had to use alternative modes of transport for an eight-day period experienced a stronger impact in terms of their perceptions and behaviour going forward.

Darnton, Verplanken, White and Whitmarsh (2011) bring together psychological approaches to understanding habit and social practice approaches to understanding routine. Darnton et al. (2011) note that as habits are not fully rational or conscious, education and information strategies to alter them often do not work. Instead Darnton et al. (2011) assert that habits and routines should be considered holistically, including the contexts in which they take place, if successful approaches to disrupt habitual behaviours are to be designed. Similarly, S. Thompson, Michaelson, Abdallah, Johnson, Morris, Riley and Sims (2011) describe how 'moments of change' during points in the life course, such as leaving home, attending university or starting a new job, disrupt

previous actions and offer opportunities for people to undertake new sustainability actions. Parallels can be observed between these moments of change, Mezirow's (2000) disorientating dilemmas and Kasser's (2013) disruptive experiences.

Steg and Vlek (2009) identify that most research into environmental behaviour in environmental psychology has examined motivations. These research strands encompass cost-benefit approaches (Ajzen, 1991; Kaiser, Wölfing and Fuhrer, 1999), moral and normative concerns (Schwartz, 1992; Stern, P.C., Dietz, Abel, Guagnano and Kalof, 1999), affective dimensions (Gatersleben, 2007) and integrated approaches (Lindenberg and Steg, 2007). Although there are several strands of research into motivation, the following paragraphs examine what happens when motivations to undertake environmental behaviours are appealed to at a superficial level. A deeper consideration of underlying values illustrates how previous approaches to environmental policy and campaigning were flawed at a fundamental level.

Crompton (2008) notes that in the past environmental policy and campaigning often appealed for people to undertake simple environmental actions that save them money and/ or make themselves feel more desirable. These "simple and painless" (Crompton, 2008, p.5) steps to engendering environmental behaviour, generally advocated by predominantly marketing approaches, fail to work when environmental behaviours are perceived to have a personal cost, be inconvenient or undesirable (Crompton, 2008; Crompton and Kasser, 2009; Crompton and Thøgersen, 2009; Key and Kerr, 2012). The application of research by Schwartz (1992, 2006) and Grouzet, Kasser, Ahuvia, Dols, Kim, Lau, Ryan, Saunders, Schmuck and Sheldon (2005) into the structure of human values and goals suggests why this might be the case. Schwartz (1992) illustrates that human values can be understood as a circular diagram (circumplex) in which the self-transcendence values associated with equity and kindness are diametrically opposed to self-enhancement values of achievement, power and hedonism. Later research broadly confirmed these relationships across different human cultures with minor variations (Grouzet et al., 2005; Schwartz, 2006). From this perspective on values, by appealing to personal desires and saving money, these initiatives were underlain by values wholly inimical to sustainability. In recent years this

holistic understanding of values has led to a reformulation of environmental and sustainability campaigning towards value-based approaches which seek to promote self-transcendence values (Blackmore, Underhill, McQuilkin and Leach, 2013).

Nevertheless, although appealing to complimentary values may be more likely to engender consistent action on sustainability issues, consideration of values still neglects a thorough examination of the context in which action takes place (Shove, 2010a). In order to better account for context, the researcher turned to sociological theories of practice to ascertain what they could contribute to developing a fuller understanding of sustainability action.

Contemporary theories of social practice have their beginnings in the work of a number of social theorists (Heidegger, 1962; Bourdieu, 1977; Giddens, 1979, 1984). Reckwitz (2002) notes that practice theory was particularly influenced by Giddens' (1984) theory of structuration which states that in order to understand society one must study both the agency of individual actors and social totality, without emphasising the importance of one above the other. Instead Giddens' (1984) advocated studying the confluence of structure and agency which he located in temporal and spatially distributed social practices. Schatzki (1996) notes that the study of practices can illuminate the relationship between society and the individual. Additionally, by decentring the individual, practice theory allows for the development of an understanding of how practices shape a person (Hargreaves, 2011). Gram-Hanssen (2010) notes that the central difference between sociological theories of practice and psychological theories of behaviour is that while psychological theories conceive of the individual as a rational and independent actor, social practice theories see the individual as part of "shared structures of knowledge, engagements and technologies" (155). Shove (2010a) asserts that this is primarily a factor of the paradigmatic approaches that frame these fields of study.

There are a number of different versions of social practice theory which identify varying numbers of constituent elements (synthesis provided by Gram-Hanssen, 2010). The researcher chose to focus on Shove's (2003a; Shove et al., 2012) iterations of practice theory as they are clearly articulated and her iteration has also specifically been

applied to climate change and broader environmental and sustainability practices (Shove, 2010a; 2010b).

Shove et al. (2012) asserts that practices are enacted at the nexus of three elements they identify as materials, meanings and competencies. Materials are described as "tangible physical entities" (Shove et al., 2012, p.14) which include technologies, objects and the body of persons preforming the practice in question. Meanings are described as symbols, "aspirations and ideas" (Shove et al., 2012, p.14). Shove et al.'s (2012) description of competencies parallels discussions of the behavioural and procedural dimension of knowing discussed in earlier sections. Of particular interest to this research is Shove et al.'s (2012) conceptualisation of time which is outlined in Figure 2.7.

Figure 2.7 Shove et al.'s (2012, pp.127-130) conceptualisation of time

- Practices compete for time.
- Practices are inserted into peoples' (time) schedules.
- Elements (materials, competencies and meanings) enable practices to endure over time.
- Practices make time.

This holistic conceptualisation of time illustrates its centrality to sustainability action, in contrast to psychological theories of behaviour which treat time as an additional contextual factor (Shove, 2010a).

Social practice theory clearly offers advantages in its ability to holistically conceptualise action across space and time, instead of treating these as additional factors (Shove, 2010a). In addition, the conception that people are "body/mind" (Reckwitz, 2002, 256) entities that carry out practices as part of the world they inhabit, complements earlier discussions into the theory of knowledge and experience from which this chapter began. However, this research's interest in studying the individual across life course to develop a holistic understanding of sustainability action, which is underpinned by individual theories of experiential and transformative learning, means that an approach wholly based on practice theory approach cannot be adopted (Warde, 2014). Therefore the researcher developed the actions framework to holistically conceptualise sustainability behaviours and practices, drawing on the strengths of the psychological and sociological theories discussed above.

Working from this understanding of psychological and sociological theories of behaviour and practice, the researcher developed the actions framework (depicted in Figure 2.8). This framework incorporates three base elements into its conceptualisation of individual action: Knowing, time and material. Parallels can be observed between this framework and Shove et al.'s (2012) statement of social practice theory. However, the actions framework is not a sociological theory of practice. This is because it was conceptualised with this study's focus on the individual's life course, using concepts that Warde (2014) notes are incompatible with sociological theories of practice.

Figure 2.8 The actions framework

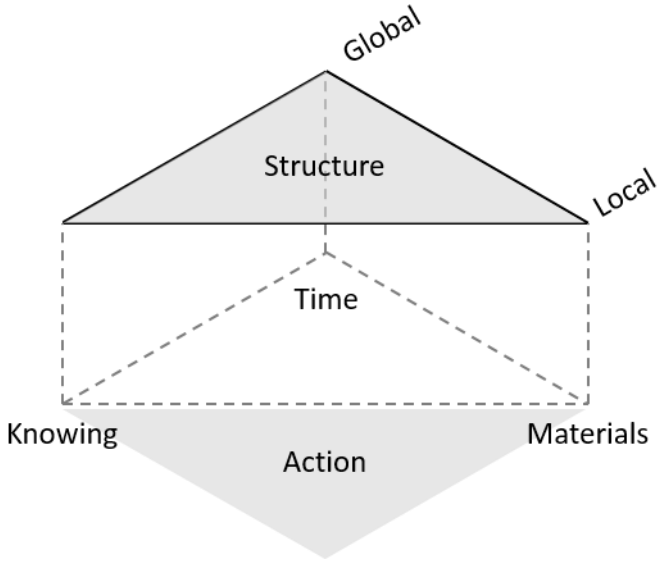

Figure drawn by the researcher, tripartite base inspired by Shove et al.'s (2012) theory of practice.

While both sociological (Schatzki, 1996; Reckwitz, 2002; Shove et al., 2012) and psychological (Stern, P.C., 2000; Darnton, 2008a; Steg and Vlek, 2009) theories break knowing into different elements, the actions framework depicts knowing as an integrated element. Although connected ways of knowing are not required for sustainability action, the previous section illustrated that knowing across all the dimensions of the epistemology of connection appears more likely to result in sustained action (Pooley and O'Connor, 2000). In addition, the treatment of knowing as a contiguous whole allows for it to be considered holistically, integrating insight from discussions of transformative learning and connection into the study of participants' experiences across their life courses. Materials are considered in line with Shove et al.'s

(2012) conceptualisation of them as tangible entities and resources which are required to perform actions. In contrast to psychological theories of behaviour which treat time as an additional contextual factor and sociological theories of practice that subsume time into their constituent elements, the research aim to understand sustainability action across the life course led the researcher to explicitly include time as an element in this actions framework. Time is conceptualised in line with Shove et al.'s (2012) theory of practice.

As the actions framework was formulated to study individual sustainability action across the life course, in order to acknowledge the indivisible relationship between the individual and social totality (or when conceptualised in line with Bateson, 1972, the organism and environment), a layer entitled structure, scaled from local to global, was included. This structural layer is akin to Giddens' (1979) description of both structures and systems. Giddens (1979) described structures as configurations of rules and resources, and systems as "regularised relations of interdependence between individuals and groups" (p.66). Thus the actions framework considers structures to be configurations of knowing, materials and time which are held by both persons and institutions that vary in their temporal and spatial distribution. Additionally, the consideration that structures operate at different scales acknowledges the differing determinants and outcomes of sustainability activism (Finger, 1994), actions conducted in the public and private sphere (Gardner and Stern, 2002) and as part of organisations (Stern, P.C., 2000). The final section in this chapter presents the conceptual model derived from the critical examination of the literature.

2.7 A holistic conception of action

Figure 2.9 Towards a holistic understanding of sustainability action across the life course

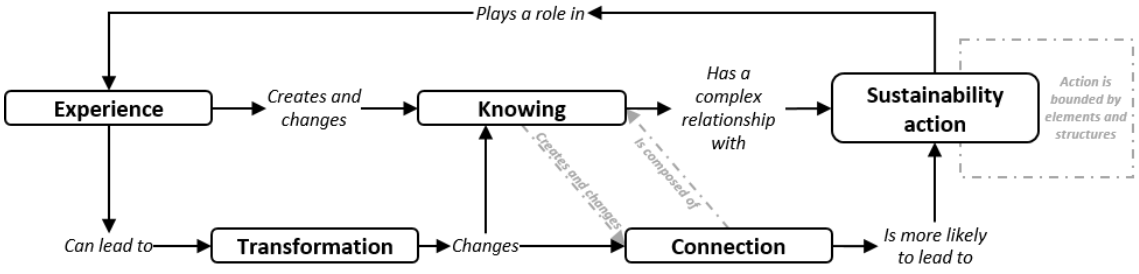

Figure drawn by the researcher linking together bodies of literature discussed in chapter two.

Figure 2.9 outlines a holistic conception of action from the bodies of literature discussed above. Knowing is created and reformed in the experiences of the organism in the environment. Knowing is characterised by cognitive, affective and behavioural dimensions which can bear some relationship to action. However, connected ways of knowing across these dimensions are more likely to result in action on sustainability issues. Transformative experiences can lead to dramatic shifts in knowing, which can strengthen connection to one's self, other people and the more-than-human natural world. Finally, sustainability action itself constitutes an experience that can engender knowing and transformation strengthening connection.

In reviewing the literature discussed above the researcher noted a tension between the theories of knowledge which underpin the paradigmatic positions of research in education (which underlies learning theory, Gray and MacBlain, 2012), psychology and that of sociology. An examination of Lincoln et al. (2011) supported by Shove (2010a), revealed these paradigmatic positions to be incompatible. In order to adopt a methodological position that allowed for these competing descriptions of knowing and reality, the researcher turned to pragmatism (Ormerod, 2006; Morgan, 2014). Chapter three describes the pragmatic approach adopted by this thesis which led to the identification of the life history method as the most appropriate way to study sustainability action across the life course.

Chapter three

Methodology and methods

Developing the life history approach

3.1 Introduction

Chapter two noted that in order to address the wicked problems that face sustainability, research and practice need to transcend traditional disciplinary approaches to these issues (Rittel and Webber, 1973; Levin et al., 2012). Chapter two drew on several bodies of literature from diverging research paradigms to create an interdisciplinary conceptual model (Figure 2.9) which provides a fuller understanding of sustainability action than can be achieved from one particular paradigm. This chapter outlines the methodological approach and methods utilised to meet the overall aim and objectives of this study, addressing the challenges faced by contemporary research into sustainability action. This chapter begins by establishing the methodological foundations of this thesis to provide a background for the discussion of the research methods employed in this study.

3.2 Methodological context

Chapter two introduced methodology as the philosophical reasoning derived from ontology and epistemology for the methods employed to attain knowledge on the matter under investigation. The methodologies that drive current research into sustainability action, and that underpin policy approaches, are primarily driven by quantitative, experimental practices of research. These research practices fail to acknowledge the complexity and temporality integral to a fuller understanding of sustainability action (Shove, 2010a). In response, this research aims to develop a fuller understanding of sustainability action by drawing on research from across different paradigms. In recognition of the interdisciplinarity required to address the challenges of previous work, the researcher adopted a pragmatic approach and recognises the advantageous paradigmatic flexibility this entails (Ormerod, 2006; Morgan, 2007, 2014).

Pragmatist methodologies depart from traditional quantitative and qualitative methodologies that have dominated positivist and constructivist enquiries in the social sciences. Pragmatism transcends exclusive claims to knowledge and reality held by positivist and constructivist paradigms (Morgan, 2014). Broadly speaking, whereas positivism proclaims a comprehendible external reality, constructivism asserts that reality is constantly being renegotiated by social actors (Lincoln et al., 2011). In contrast, pragmatism considers both reality and knowledge to be always in motion (McCaslin, 2008). Hence pragmatism recognises there are many ways to know and investigate an ever-changing reality (Moses and Knutsen, 2012).

Critics of pragmatism contend that "it is an attack on theoretical thought" (McCaslin, 2008, p.674), decrying its lack of a fixed epistemological position and asserting that its attempt to bridge objectivity and subjectivity is untenable to proponents of either epistemological standpoint. Nevertheless, the researcher's experience of transitioning from adherence to the research paradigm of the natural sciences to the social sciences in his undergraduate study made the pragmatist consideration of mutable truth and reality an appealing methodological position from which to conduct this interdisciplinary research.

Morgan's (2007) comparison of qualitative, quantitative and pragmatic methodological approaches is outlined in Table 3.1.

Table 3.1 Comparison of social science research methodology (taken from Morgan, 2007, 71)

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Table taken from: D.L. Morgan, 'Paradigms lost and pragmatism regained: methodological implications of combining qualitative and quantitative methods', *Journal of Mixed Methods Research* (Thousand Oaks: Sage Publications, 2007, 71).

Morgan (2007) characterised the relationship between theory and data as one of abduction in which the researcher iteratively "moves back and forth between induction and deduction" (71). Morgan (2007) also argued that pragmatism rejects the exclusive nature of quantitative and qualitative perspectives on objectivity and subjectivity

respectively. Morgan (2007) adopted the term intersubjectivity[1] to describe the fluid nature of knowledge, creating a shared space in which enquiry founded on diverging paradigmatic approaches can be recognised as providing valuable contributions to addressing the research problem. Finally, Morgan (2007) dismissed the dichotomy between qualitative and quantitative researchers to describe their findings as either contingent on context or universally generalizable. Instead Morgan (2007) advanced Lincoln and Guba's (1985) concept of transferability to assert that the application of the findings should determine the extent to which they are generalizable or context-dependent.

Chapter one outlined the researcher's motivations recognising that social researchers often neglect to acknowledge how their life experiences frame their study design and analysis (Merrill and West, 2009). Pragmatism recognises the centrality of the researcher's experiences, perspectives and values, arguing that they be clearly communicated when situating the study (McCaslin, 2008). In order to do so, this thesis adopted MacLachlan and Reid's (1994) consideration of framing to outline the position from which this study was conducted (Table 3.2).

3.3 Life history approach

The pragmatic assertion that both reality and knowledge are fluid and situational, invites the researcher to select methods based on their ability to address the research aim and objectives, instead of being bound by prior ontological and epistemological commitments (Denscombe, 2008; Morgan, 2014). The life history approach was selected for this research because it was able to address the research aims while also meeting the challenges posed by prior discipline-focused research. The following paragraphs introduce and critique the life history method, and establish why it was the most appropriate method for this study.

[1] At all other points in this thesis the term intersubjectivity is specifically used to refer to the concept of shared understanding between the researcher and participant (Anderson, 2008).

Table 3.2 Frames which influenced the research process

Frame	Definition	Example from the researcher
Extratextual	Knowledge accumulated from the researcher's life course through which they understand the world.	The researcher has been in full-time education for most of his life but has also engaged in both paid and voluntary education and social work in the UK, USA, Europe and Mauritius.
Intratextual	Internal framing devices such as age, sex and class.	The researcher is male, in his mid-twenties, mixed-race and was brought up in East London in a Roman Catholic family.
Intertextual	Interpretive framework from the researcher's academic discipline/ field.	The researcher's previous dissertations were undertaken from a constructivist research paradigm. The researcher began undergraduate studies in ecology and conservation and shifted towards interdisciplinary research on sustainability towards the end of his first degree.
Circumtextual	How current events (life history interviews) are interpreted and the context in which they take place.	The researcher was open-minded when considering the participants' responses and encouraged them to respond freely.

Life history research methods have their origins in the oral traditions of humanity's pre-literacy era (Merrill and West, 2009). P. Thompson (2003) commented that these methods provide insight into the unheard histories of minority voices, exposing the interactions of the person and their past. Additionally, Merrill and West (2009) asserted that life history methods provide the researcher with an opportunity to work with the participant towards developing a shared (intersubjective) understanding of the matter under investigation, gaining insight into how the participant experiences, understands and interacts with it. The life history method's ability to explore experience, context and temporality meant it was well-suited to addressing the research aim, meeting the difficulties faced by contemporary research into sustainability action.

Critics of the life history method such as Cary (1999) expressed their concerns over the ability of the interview method to evaluate and present truth claims. Goodson (1998) noted that the problem of decontextualisation occurs when narratives from participants are presented without enough contextual data to enable the reader to evaluate the context in which the statement was made and decide on its application. While Goodson (1998) stated that this can be overcome by providing enough contextual information, Cary (1999) remained unconvinced. It would appear that Cary's (1999)

discomfort stemmed from her epistemological position that there is a particular truth that can be known. Adopting a pragmatic methodological perspective on life histories would meet Cary's (1999) criticism as the truth would be considered mutable. Additionally, from a pragmatic perspective when the principle of transferability is considered, Goodson's (1998) justification of providing contextual information allows a reader to come to an understanding of the applicability of the research findings. Throughout the results and discussion chapters the researcher strove to provide adequate contextual information in order for the reader to develop their own understanding of the transferability of these research findings.

Contemporary applications of the life history method to similar research problems illustrated its utility to addressing the research aim to work towards a fuller understanding of sustainability action. Hards (2012) employed a life history approach to examine the context in which the transformation of action on climate change takes place. Hards' (2012) study illustrated that the life history method could provide wider contextual information on the conditions of the experiences of the participants across their life courses, meeting the overall aim of this study. More specifically, Hards' (2012) delineation of transformative moments from her life history interviews illustrated the method's ability to address that aspect of this study.

In addition, Uzzell et al. (2010) conducted a pilot study which examined the feasibility of employing a life history approach to understand outdoor preferences and practices in relation to health and leisure activities. Uzzell et al. (2010) identified that life histories could provide researchers with rich insights into the histories of people's actions, illustrating how these developed over time. This illustrated that the life history method would be able to capture the temporal variability in both connection and action, meeting these respective research objectives and the overall aim of this study.

In summary, the life history method was chosen because the extended, unstructured conversation builds a rapport between researcher and participant through which an intersubjective understanding is developed (Merrill and West, 2009). This enabled the researcher to establish how the participants' experiences may have contributed to their understanding and action on sustainability (research objective one)

and connection (research objective two). In addition, the life history method was able to provide contextual and temporal information about participants' action on sustainability (research objective three).

Reflection on the adoption of life history approach

Social researchers are often notoriously poor at accounting for the messy nature of real world research (Robson, 2011). In 2010 this study began with the aim to develop an understanding of the characteristics of outdoor experience which engendered transformations in sustainability actions. This aim was derived from the initial academic impetus for the thesis which came from the researcher's initial exploration of enquiry into significant life experiences (SLEs) whilst reading for his Master of Science thesis. Research into SLEs contended that experience in outdoor, natural settings especially in childhood increases a person's propensity to take action on environmental issues throughout their life course (Tanner, 1980; Palmer, J.A. and Suggate, 1996; Chawla, 1999). Chawla's (1999) recognition that environmental action was intrinsically linked to social action, supported by Daloz et al. (1996) and contemporary enquiry into sustainability action (Hards, 2012; Howell, 2013), led to the supposition that formative experiences in the outdoors may have characteristics which predispose people to undertake sustainability actions across their life course. From this original impetus and aim, the life history method was selected to address criticisms of prior research into SLEs.

Tanner's (1980) initial goal was that enquiry into SLEs would inform environmental education, which he perceived as being tasked with creating informed and active citizens who were able to address environmental issues in their society. Throughout the 1980s and 1990s, the body of research into SLEs broadened from its initial focus on US-based conservation professionals and volunteers (Tanner, 1980) to include those active in other environmental fields and in other parts of the world (Palmer, J.A., 1993; Palmer, J.A. and Suggate, 1996; Palmer, J.A. et al., 1998a). Research into SLEs employed a variety of methods beginning with Tanner's (1980) closed-question mail survey, which was replicated in the UK by J.A. Palmer (1993; Palmer, J.A. and Suggate, 1996) and diversified to include structured, open-ended interviews (Chawla,

1999). Although SLE research employed different methods and research questions, similar findings were uncovered by other researchers (Chawla, 1998a; 1998b) (A1.2, A1.3).

However, as discussed in chapter two the predominantly enumerative approaches into SLE research taken by Tanner (1980) and J.A. Palmer (1993; Palmer, J.A. and Suggate, 1996; Palmer, J.A. et al., 1998a) came under criticism from a group of researchers in environmental education (synthesis provided by Gough, S., 1999). Criticisms focused on the definition of nature (Gough, N., 1999), the value of environmental activism (Payne, 1999), the link between experience, education and behaviour (Dillon, Kelsey and Duque-Aristizabal, 1999) and the limits of replication (Gough, A., 1999). Much of these criticisms were aimed at earlier work in the field (Tanner, 1980; Palmer, J.A., 1993; Palmer, J.A. and Suggate, 1996; Palmer, J.A. et al., 1998a) with S. Gough (1999) and other critics noting that Chawla's (1999) later study had done much to address them. Chawla (2001) made a systematic response to these criticisms and her work (1999) provided the starting point when designing the life history interview schedule. The following paragraphs review criticisms of SLE research pertinent to the life history methodology, as other criticisms were either not relevant or addressed in chapter two.

In his synthesis, S. Gough (1999) questioned what research into SLEs uncovered, stating that instead of exposing what experiences were formative in predisposing people to environmental action, SLE research potentially uncovered experiences that people who were already predisposed to environmental action might recall. In her review into research methods, Chawla (1998a) discussed how memory serves a utility function which she defines as "how we interpret and use the past in meeting the challenges of the present and in anticipating the future" (388). Chawla's (1998a) comment on the utility function of memory illustrated how people reason their decisions based on prior life experience, which is mediated by the social norms and wider culture which situate them. Originally this study built upon Chawla's (1999) structured, open-ended interview method, developing it into a life history method while being cognisant of the criticisms raised by S. Gough (1999) and others. Chawla's (1998a, 2001) assertion that SLE research

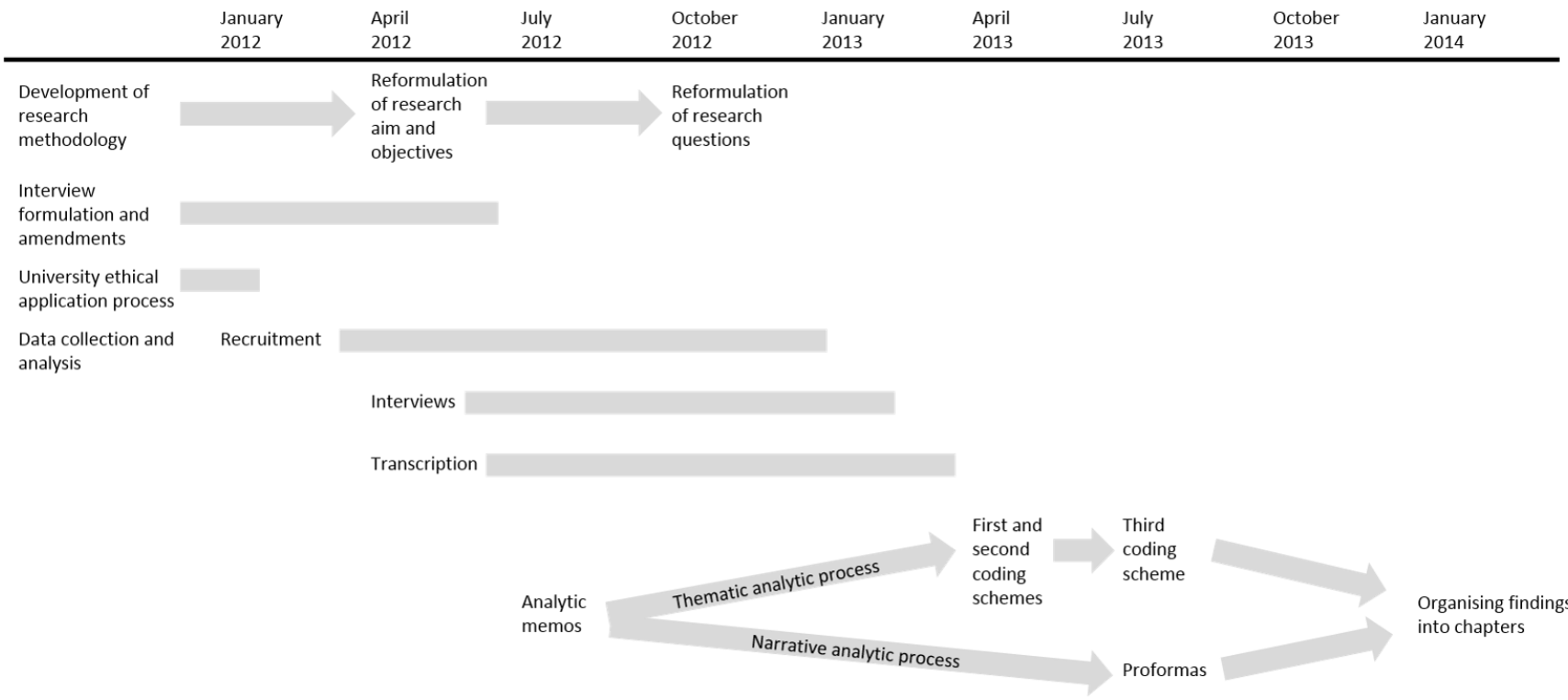
is founded upon the utility function of memory complements the life history method's aspiration to create intersubjectivity, uncovering the participants' perceptions of their experiences and exposing the contexts in which they take place. This was interpreted as providing grounds for comparability between previous SLE research and the findings of this study to address research question 1a.

In his criticism, N. Gough (1999) argued that SLE research conflates complex issues such as the influence of outdoor experience and education on behaviour. As previously noted, Tanner's (1980) original aim was to identify and incorporate formative experiences into environmental education in order to further action on environmental issues. N. Gough (1999) interpreted this as implying a simplistic relationship between education and behaviour. However, Tanner (1998) and later researchers into SLEs (Chawla, 1999; Chawla and Cushing, 2007) acknowledge the relationships between experience, education and behaviour are complex.

Following P.C. Stern (2000) and Chawla and Cushing (2007), this thesis originally sought to conceptualise the relationship between SLEs, education and behaviour using psychological theories of environmental behaviour (Stern, P.C., 2000; Steg and Vlek, 2009). However, the recognition that psychological theories of behaviour are poorly-suited to account for temporal changes in action (Thompson, S. et al., 2011) as well as the wider social and physical context in which action takes place (Shove, 2010a), alongside an introduction to the sociological literature on practice theory (Bourdieu, 1977; Reckwitz, 2002; Shove et al., 2012) in 2012 led the researcher to formulate the actions framework (outlined in chapter two) to account more fully for these perspectives on sustainability action.

This interdisciplinary understanding of sustainability action led the researcher to question what, in addition to the characteristics of outdoor experience, influenced the sustainability actions participants undertook throughout their life course. This strengthening in understanding of research area led to a reformulation of the research aim and objectives shortly before interviewing commenced.

Figure 3.1 The research process



In summary, although the research aim shifted from a focus on the characteristics of outdoor experience to the characteristics of experience across the life course, the study still aspired to account for similar research problems, thus the methodology remained constant.

3.4 Research process

In order to develop a holistic understanding of sustainability action across the life course, thirty-three life history interviews were conducted and analysed. This section describes the research process outlining the study design, ethical considerations, sampling strategy, data collection and analysis. Although these elements have been separated out for discussion in this chapter, the process was iterative. For example, initial analysis from the first nine interviews informed the development and revision of the interview schedule and research questions. The research process is summarised in Figure 3.1.

3.4.1 Study design

The research originally began with the aim to explore the characteristics of outdoor experience that engendered transformations in sustainability actions. With this in mind, the researcher initially approached the John Muir Trust (JMT) with the intention of conducting research with participants who had recently completed their John Muir Award (JMA). The JMT describes itself as "a conservation charity dedicated to protecting and enhancing wild places" (2015). The JMA is a non-competitive environmental education award programme that encourages participants to develop an appreciation of wild places (Bushby, 2003). In her discussion of research methods into SLEs, Chawla (1998a) noted that recent outdoor experiences can serve as a window on earlier life experiences. Contemporary research by Bingley and Milligan (2009) in which adult participants were asked to reflect on their childhood memories of outdoor activities also supported this recruitment strategy. With this in mind, the JMT were approached and agreed to recruit participants for this study. The appendices outline the letter of intent sent to the JMT in February 2012 to confirm the details of this research project (A2.2).

Appendices A2.3 and A2.4 outline invitations to participate from the JMA e-bulletin and newsletter and a presentation made at the Scottish JMA gathering in October 2012.

As the researcher began to interview participants, his growing understanding of the research area led to a reformulation of the research aim and objectives towards examining the general characteristics of experience that appear to influence sustainability action. Findings from the initial interviews supported this reformulation, and the research aim and objectives were amended to enable a fuller exploration of the participants' life experiences. The research questions were refined and finalised later in the research process.

In recognition of the change in research aim and focus to examine sustainability action across the life course, participants who were active in addressing sustainability issues were also recruited. Later, educators and two participants who did not identify with sustainability issues were also recruited. The sampling strategy is discussed in greater detail later in this chapter. The following paragraphs describe the formulation and development of the life history interview.

Pre-interview questionnaire

A pre-interview questionnaire was formulated for participants recruited by the JMT. Participants in life history interviews must feel comfortable and be open with the researcher (Merrill and West, 2009). Although participants recruited as key informants through the researcher and his supervisors had some connection to the researcher, this was not the case for participants recruited by the JMT. Therefore, an online pre-interview questionnaire was developed to familiarise potential interview participants with the types of questions included in the interview to enable the participant to gauge if they would like to proceed (A2.6). Table 3.3 outlines the structure of the pre-interview questionnaire, explaining its purpose and relating it to the research aim and objectives.

Of the fifteen participants who completed the pre-interview questionnaire, nine went on to complete the life history interviews. The pre-interview questionnaire gave the researcher an indication of the participants' interests and background, providing material to initiate discussion in the life history interviews. Additionally, it also provided talking points if the participant was struggling to elaborate on a topic area. The pre-

interview questionnaire was not undertaken with non-JMA participants because as they had been identified by the researcher, supervisorial team and mutual acquaintances, it was considered that there would be enough of a pre-existing connection to these participants that they would be inclined to talk fully about the topics under discussion.

Table 3.3 Outline of pre-interview questionnaire

Questionnaire part	Description
A) John Muir Award experience	Open questions focused the participant on describing their most recent experiences in the outdoors which Chawla (1998a) identified as a good way to encourage them to compare and contrast their experiences in the outdoors over the life course. This part of the pre-interview questionnaire was developed to address the original research aim.
B) Questions on behaviour (actions matrix)	Multiple choice questions asked the participant to comment on how frequently they undertook social and environmental actions. This enabled the researcher to build an understanding of the level of commitment the participant had to sustainability action, facilitating discussion of this topic in the life history interview (research objective three).
C) Questions about yourself	Open questions that asked the participant about their background. These gave the participant an idea of the types of questions that would be asked in the life history interview and gave the researcher a basis from which to begin the life history interview. These responses also gave the researcher an indication of context in which the participant's understanding and action on sustainability had developed, addressing research objectives one and three.

Life history interview

An initial interview schedule was produced from an evaluation of Chawla's (1999) use of semi-structured interviews on SLEs and Uzzell et al.'s (2010) employment of the life history method to study outdoor practices. After the initial interview schedule was produced, it was reviewed by a lecturer in the School of Management who had experience with life history methods, and who provided constructive feedback. Once the first nine interviews were complete, an initial analysis of the interview material was conducted to ascertain if the method and the initial findings would enable the research aim and objectives to be met. Denzin (2000) advocates a process of ongoing analysis to adapt the interview questions to elicit richer or more focused responses as required. This initial analysis enabled the interview schedule to be strengthened and the research questions to be refined. Table 3.4 outlines the structure of the life history interview, explaining its purpose and relating it to the research aim and objectives. The interview schedule can be found in the appendices (A2.10).

Table 3.4 Outline of interview schedule

Interview part	Description
A) Early life and family **B) Childhood education** **C) Adulthood**	These parts of the interview asked broad, descriptive questions about family, education and employment history. These were used to build a rapport with the participant and make them comfortable with providing rich, descriptive answers. Furthermore, these parts provided the contextual and temporal information required to address the research aim and objectives. Participants also identified experiences of significance during this part of the interview, which specifically aided in addressing research question 1a, which compares this study to earlier research into significant life experiences (Tanner, 1980; Palmer, J.A. and Suggate, 1996; Chawla, 1999) and lives of commitment (Daloz et al., 1996; Daloz, 2000).
D) Concerns and values	Part D) on concerns and values precedes part E) on behaviours, illustrating that the interview schedule was originally formulated from a reading of the psychology literature into environmental behaviour (Schwartz, 1992; Stern, P.C., 2000; Leiserowitz et al., 2006). This part of the interview enabled the researcher to determine the extent to which knowing as an element of the actions framework is involved in action, contributing to addressing research question 3a. Participants also used this part of the interview to reflect on how their concerns and values had changed over time. Therefore, this contributed to an understanding of the temporal variation in their understanding of sustainability issues (research objective one), nature connection (research objective two) and sustainability action (research objective three).
E) Behaviours (actions matrix, A2.11)	The actions matrix, a multiple choice inventory of sustainability actions, was formulated to facilitate discussion on participants' actions and is outlined below. Discussion of the different sustainability actions performed at different times in the participants' lives informed an understanding of temporal variations in these actions and the contexts which supported them, addressing research objective three.
F) John Muir Award questions	If the participant had undertaken the John Muir Award the life history interview included a discussion of the responses they had given in the pre-interview questionnaire if these had not previously been covered.
G) Inclusion with nature in self (survey instrument, A2.12)	Schultz's (2001) inclusion with nature in self survey instrument was employed to prompt a discussion on how participants saw themselves in relation to nature. The discussion arising from this part of the interview contributed to addressing research objective two, strengthening the understanding of how participants experienced nature connection. The use of this survey instrument is outlined below.

In summary, the life history interview enabled the researcher to establish how the participants' understanding of sustainability issues (research objective one), connection with nature (research objective two) and sustainability actions (research objective three) changed across the life course, exposing contextual and temporal nuances to meet the overall aim of this study. In contrast, postal surveys employed by earlier research into SLEs (Tanner, 1980; Palmer, J.A. and Suggate, 1996), survey instruments and pre and post intervention tests employed by research in environmental psychology (Steg and Vlek, 2009) would not have yielded detailed enough insights to holistically meet the research aim and objectives.

Actions matrix

The actions matrix is a multiple choice inventory of sustainability actions (A2.11), which was designed to encourage participants to discuss the different actions they undertook. The actions matrix prompted a discussion around the context in which sustainability actions took place. In addition, as participants were asked to complete it for different points in their life course, it was able to expose temporal variations in sustainability action. These features illustrate how the actions matrix contributed to addressing research objective three, exposing the contextual and temporal nuances that could prevent connection from leading to action.

The actions matrix was originally designed after J.A. Palmer's (1993) use of a checklist of environmental behaviours to clarify her participants' practical commitment to these issues. Actions were chosen for inclusion from their discussion in environmental psychology and SLE research (Finger, 1994; Chawla, 1998a; Stern, P.C., 2000; Chawla and Cushing, 2007). The multiple-choice element asked participants to describe how frequently they undertook the specified sustainability actions. This elicited conversations on context, ability and choice which provided a fuller understanding of sustainability action than could be obtained from closed question surveys of environmental behaviour that has dominated the research and policy literatures (Steg and Vlek, 2009). The actions matrices generated a wealth of data which was used to inform understanding of both contextual and temporal trends in sustainability action; this data is presented in the appendices (A3.1, A3.2).

Inclusion with nature in self survey instrument

The final part of the interview employed Schultz's (2001) inclusion with nature in self (INS) survey instrument to encourage participants to discuss how they saw their self in relation to the natural world. This often opened up into a detailed discussion about participants' experiences of nature connection across their life course, which aided in addressing research objective two.

During the initial pilot interviews it proved difficult to get participants to discuss their connection to nature through open and follow-up questions. Therefore, Schultz's (2001) INS scale (A2.12) and Mayer and Frantz's (2004) connectedness to nature

instrument (A2.13) were trialled to see if they were suited to facilitate discussion on nature connection. Chapter five offers a detailed comparison of these measures in the context of understanding the findings of this study. Schultz's (2001) INS survey instrument was found to be better at eliciting detailed qualitative responses from participants and was adopted for the remainder of the study.

3.4.2 Ethical considerations

Prior to commencing with recruitment for the life history interviews, ethical approval for the research was sought and gained from the University Teaching and Research Ethics Committee in the School of Geography and Geosciences (GG8403, 9 Feb. 2012; GG11767, 29 Sep. 2015, A2.1). The application for ethical approval ensures the researcher has taken suitable precautions against their self and the participants coming to harm, minimising the potential of bringing their institution into disrepute (Bryman, 2008). The ethical considerations identified in this study were emotional sensitivity, informed consent, limiting attribution of data to participants and the ethical management of data.

The researcher recognised that asking participants to recall their life experiences may raise traumatic past events or bring to the fore difficulties the participants were currently experiencing (Merrill and West, 2009). To address this, the researcher conducted himself with sensitivity and awareness, working from both verbal and non-verbal cues to establish what was and was not up for discussion. The researcher also gave participants space to communicate their feelings and used adequate breaks after discussions that appeared upsetting, offering participants the opportunity to pause the interview.

Bryman (2008) and Merrill and West (2009) describe informed consent as essential to participation in most social research, stating that it is vital that participants understand as much as possible about the research before they commit to participation. However, Fine, Weis, Weseen and Wong (2003) note that the process of informed consent can disrupt working towards intersubjectivity by exposing the different positions of the researcher and participant. Hence while the procedure of informed consent may not be appropriate in all research contexts, in order to emphasise the

voluntary nature of participation and give participants every opportunity to ask questions about the research, informed consent prior to participation was sought in both verbal and written formats (A2.9). Although some participants found the consent process 'cumbersome', the majority noted that it was useful in giving them a feel for the content and focus of the interviews.

The building of a rapport and trust between participant and researcher is essential in the life history method if an intersubjective understanding is to be developed (Merrill and West, 2009). As participants share the intimate details of their lives with the researcher, it is important to protect the participant's privacy by disguising their identity as much as possible (Merrill and West, 2009). However, the referential nature of the sampling strategy employed in this study (described below) meant that participants would be known to one another. Although the researcher was not able to guarantee fully anonymity, the researcher was the only person to hold directly attributable data. All participants were assigned a pseudonym. Additionally where possible, situations described by participants were delocalised, with most specific town and city names removed. Although the JMT initially aided in recruitment, they were not informed of who had participated in order to uphold the participants' privacy. The data was managed and stored securely to maintain the confidentiality of the participants.

3.4.3 Sampling strategy

Merrill and West (2009) state that it is not usual for life history research to employ a mixed sampling strategy, agreeing that participants should be both able and willing to talk about the subject under consideration. The following paragraphs detail how participants were recruited, how the threshold for theoretical saturation was identified and offer a description of the sample.

Recruitment

The researcher aimed to recruit a purposive sample in which participants would be willing to talk about their life history and sustainability actions. A purposive sample is a sample where participants meet specific criteria with regards to the experiences and characteristics under investigation (Merrill and West, 2009). The purposive sample is not

meant to be representative of the population, and as a non-probability approach, adherents to the positivist paradigm would assert that no generalisations could be made from it (Bryman, 2008). However, as this research was conducted from a pragmatic perspective, the principle of transferability asserts that the nature of the findings themselves dictate the extent to which they are context-specific or can be applied to other situations (Morgan, 2007). Initially, as the researcher was interested in identifying the transformative characteristics of outdoor experience, people who had recently completed a JMA were identified as suitable participants and were recruited by the JMT.

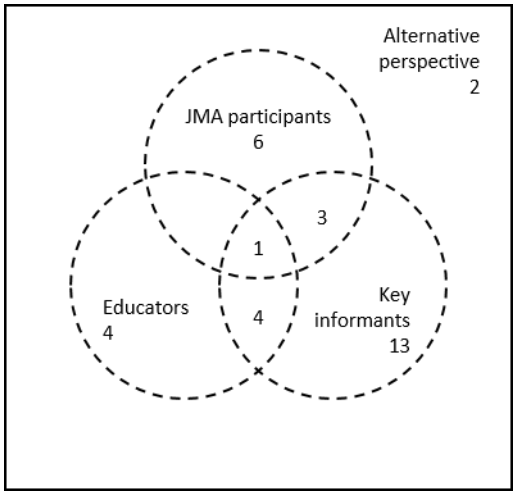
When the research aim shifted to establishing an understanding of sustainability action across the life course in general, it was important to interview people active in addressing sustainability issues. These participants, referred to as key informants, were people who were involved in activities such as transition movements, political advocacy, charity fundraising and environmental and social organisations. This group was recruited through the researcher's and his supervisors' network of contacts, with earlier participants also recommending people for the researcher to contact. This provided an introductory link which helped to foster the rapport needed to work towards attaining the intersubjectivity crucial to addressing the aim and objectives of this study.

Two additional purposive sample characteristics were sought when completing the sample. The researcher was interested to see if there were any marked differences between people who identified with sustainability issues and people who did not. Two participants were identified to the researcher as people who did not identify with sustainability issues and they agreed to be interviewed. Also, as previous enquiry into SLEs had focused on educators (Palmer, J.A., 1993; Palmer, J.A. and Suggate, 1996; Palmer, J.A. et al., 1998a), this characteristic was also pursued in the hope that it may yield comparative insights between this study and previous work (research question 1a).

An initial analysis of the sample revealed there was an extensive degree of overlap in the findings between all recruitment groups. Therefore for the purpose of further analysis and presentation in this thesis, the participants were presented as one sample without distinctions made between the recruitment groups. Figure 3.2 illustrates

how the participants overlapped between the desired experience and characteristics of the purposive sample.

Figure 3.2 Graphical outline of the purposive sample



Key: n, number of participants which met the different characteristics of the purposive sample.

Sample size

Sample size is a controversial topic in qualitative research (Mason, 2010). Mason's (2010) study of sample size in qualitative research found the average sample size to be thirty-one, though sample sizes that were multiples of ten were grossly over-represented. Mason (2010) argued that this reflected a premeditated approach to qualitative sampling which was incompatible with the concept of theoretical saturation. Theoretical saturation is the point at which data collection would yield no further insight into the problem the researcher is seeking to understand (Sandelowski, 2008).

The inclusion of two pilot study participants brings the sample size of this research to thirty-three. This study's research objectives provided the criteria to ascertain if theoretical saturation had been met. Initial thematic analysis of the transcripts was used to identify if there were any previously undisclosed themes arising in the data. After completing twenty-five interviews it was considered that theoretical saturation had been met, however the sampling strategy employed whereby five to ten interviewees were recruited at once to account for dropouts meant that data collection proceeded to the thirty-third interview.

Sample characteristics

Table 3.5 provides an outline of the sample characteristics, listing the participants' pseudonyms, age range, occupation, country of origin and area of residence. The sample was composed of twenty-two women and eleven men. The age group divisions were based on those employed by the JMA, which overlap with those employed by SLE research. The age group divisions serve to limit the potential to identify participants and also facilitate the comparison between this study's findings and that of previous research into SLEs, enabling research question 1a to be addressed.

The majority of participants' families came from the British Isles, but a few participants' families were from North America and Australasia. All participants were ethnically white and spoke English as their first language. The life history interview relies on participant and researcher working towards intersubjectivity in order for the researcher to gain an understanding of how the participant negotiates their life world (Merrill and West, 2009). While there may be subtle differences in how participants and the researcher understand the topics under discussion due to their varying life experiences and respective outlooks on the world, the shared understanding of English-speaking culture provides common "signs and symbols" (Grbich, 2007, p.8) through which the two may communicate towards achieving a mutually meaningful dialogue.

3.4.4 Data collection and analysis

The following paragraphs describe the data collection and analysis process. For participants recruited at the JMA gathering and through the JMT newsletters, the onus was on them to contact the researcher to directly request to participate. This was to ensure that they were interested in the study and wanted to contribute, so they would be both willing and able to talk about the matter under investigation. Prior to their participation, participants recruited through the JMT were sent an information sheet which summarised the aims of the project and their estimated involvement in it (A2.5). This ensured they were fully informed. The final section of the pre-interview questionnaire asked them to note if they would like to participate in the life history interview.

Table 3.5 Description of participants

Pseudonym	Age range	Occupation	Origin	Residence
Jean	18-24	Undergraduate	Scotland	East of Scotland
Sophie	18-24	Undergraduate	England	South East of England
Stella	18-24	Postgraduate	Scotland	East of Scotland
Wanda	18-24	Postgraduate	United States of America	East of Scotland
Cara	25-29	Environmental project worker	Scotland	East of Scotland
Ingrid	25-29	Postgraduate	United States of America	East of Scotland
Iona	25-29	Postgraduate	Scotland	East of Scotland
Isla	25-29	Postgraduate	Scotland	East of Scotland
Mabel	25-29	Environmental project worker	England	Central Scotland
Sally	25-29	Environmental inclusion worker	Scotland	Central Scotland
Alice	30-39	Environmental education award coordinator	England	North East of England
Freya	30-39	Academic	Scotland	East of Scotland
Harriet	30-39	Academic	Scotland	Central Scotland
Rory	30-39	Postgraduate	Scotland	Central Scotland
Stacey	30-39	Academic	England	East of Scotland
Adam	40-49	Environmental charity fundraiser	Scotland	East of Scotland
Andrew	40-49	Environmental project coordinator	Scotland	East of Scotland
Chloe	40-49	Biology teacher	Wales	East of Scotland
Elspeth	40-49	Academic	Scotland	East of Scotland
Gethin	40-49	Academic	Wales	East of Scotland
Morven	40-49	Biology teacher	Scotland	East of Scotland
Olivia	40-49	Academic	Antipodes	East of Scotland
Patrick	40-49	Electrician	Scotland	East of Scotland
Rosie	40-49	Environmental project worker	England	East of Scotland
Thomas	40-49	Environmental education award coordinator	England	Central Scotland
Anna	50-59	Environmental project worker	England	East of Scotland
Dawn	50-59	Academic	England	East of Scotland
Jim	50-59	Estates project worker	Wales	East of Scotland
Matilda	50-59	Nursery practitioner	England	East of Scotland
Harry	65+	Retired volunteers coordinator	England	North West of England
Mark	65+	Retired lawyer	Scotland	East of Scotland
Robert	65+	Environmental project coordinator	Scotland	East of Scotland
Rufus	65+	Retired national politician	Scotland	Central Scotland

If they wanted to participate they could provide their contact details and the researcher would get back in touch with them to arrange a time for the interview.

All other participants identified through the researcher's and his supervisors' network of contacts were contacted by email to enquire if they would like to participate. When these participants were contacted they were also provided with a participant information sheet so they could make an informed decision about participating in this study (A2.8).

Participants were asked to choose the location in which they would like to be interviewed, hence interviews were conducted in a variety of locations such as the participants' offices, beaches, parks, homes and cafés. All but three interviews were completed in Scotland. The choice of the interview location and the extent to which the participant discussed it were noted for any contextual information which they might have added to findings (Duff and Ferguson, 2012). Prior to the interview, an outline of the interview, verbal and written consent procedure was undertaken to ensure the participants were fully informed about the research before data collection began. An example of a participant consent form can be found in the appendices (A2.9).

The life history interviews varied in length from forty minutes to over three hours; in total nearly forty-seven hours of interview material was transcribed, comprising approximately 405 500 words. A minority of participants required a significant amount of prompting and follow up questioning, while others spoke freely for long periods of time. All interviews were recorded on a digital dictation device and the transcription software package *ExpressScribe* and foot pedals were used to facilitate transcription of the interviews. The interviews were transcribed by the researcher into the word processing software package *Microsoft Word* soon after they were completed. This was so that any difficulties such as quality of the recording in public spaces could be overcome as the interview was fresh in the researcher's mind. In addition, this allowed for the researcher to attach notes made during the interview on the participant's mood and non-verbal cues to the interview material to strengthen the insight gained from it.

Guidance for transcription was taken from Merrill and West (2009); the interviews were "transcribed in full… and no attempt [was] made to force the speech into a written or grammatical correctness" (p.124). However, when provided with their transcripts, participants often went to great lengths to correct grammar. The interviews were transcribed verbatim for a number of reasons. Although it was recognised that undertaking verbatim transcription would be time consuming, its value in allowing the researcher to become fully immersed in the interviews, strengthening the possible analytical insight, was recognised. This also served to keep the researcher's options for future analysis open. Additionally, fully transcribing the interviews allowed the researcher to select quotes later in the research process to present in the results and discussion chapters, allowing the participants' voices to be communicated through the research. As noted earlier, the provision of quotations with an appropriate level of contextual information allows the reader to come to their own interpretation of the transferability of this study's findings without having to solely rely on the interpretation of the researcher (Goodson, 1998).

Once an interview had been transcribed the participant was sent a copy of the transcript. This enabled the participant to clarify if what they had said in their interview reflected their perspectives on the topics under discussion. This works as a check of the intersubjective understanding between researcher and participant arrived at in the interview (Bryman, 2008). All participants considered the interview transcript to reflect what was discussed, with most offering corrections to grammar and place names.

Once the participant had commented on their transcript, their name was substituted for a pseudonym to limit the ability of a reader to attribute the findings to a participant as much as possible. Initially the researcher also attempted to anonymise place names and other contextual information. However in attempting to do this, much of the contextual richness and the researcher's understanding of the interrelationships between different points of the narrative were lost. This should not have been surprising as the researcher was seeking to understand the context of the participants' life experiences and their temporal relationship to sustainability action. Going forward, the researcher refrained from anonymising anything beyond the participants' names, and

contextual information such as place names were only edited if they were to be included in the thesis.

The initial phase of analysis began during transcription with the researcher keeping informal analytic memos (Grbich, 2007) in paper notebooks while transcribing the participant interviews. These initial notes formed the basis for refining the research questions and deciding if theoretical saturation had been achieved. These memos initiated the development of the coding scheme and proformas (West, 2009, discussed below) that were used to perform thematic and narrative analyses to address the research aim and objectives.

Grbich (2007) notes that qualitative analysis can take many forms, from a prescriptive grounded theory approach (Glaser, 1992), to more fluidic forms of thematic analysis. Bryman (2008) distinguishes between thematic analysis which focuses on codifying the data to establish its qualities and characteristics, and narrative analysis which provides temporal accounts of how people negotiate their lives. In this study thematic analysis was conducted to identify the qualities and characteristics of experience, connection and action, addressing their associated research objectives. Narrative analysis was conducted to elucidate the temporal dimensions of sustainability action, situating them within the sequence of events that comprise the life course. The thematic analytical process described below loosely follows O'Dwyer's (2004) process of data reduction, display and interpretation.

The interview transcripts were imported into the qualitative data analysis software package *Nvivo* to facilitate the coding process. *Nvivo* enables the organisation of codes in hierarchical levels; the codes at the top level are referred to as tree nodes (Kesby, 2009). To produce a coding scheme to guide the thematic analysis, eight transcripts were selected from the sample. These transcripts were selected from the initial analysis because they captured the diversity of the research findings. Developing the coding schemes was an iterative process that involved alternating between the interview material and literature. The first iteration of the coding scheme produced from the analytic memos contained 13 tree nodes that branched out to 156 level one, 70 level two and 13 level three nodes (A2.14.1). As this proved unwieldy, a second iteration was

produced with 12 tree nodes, 97 level one nodes and 13 level two nodes; the level three nodes were abolished (A2.14.2). However, as the sheer volume of codes appeared to be hindering the development of the narrative analysis and removing meaningful contextual information from the discussion of the qualities and characteristics of experience, connection and action, all but the tree nodes were dropped. With the addition of one essential level one node, this resulted in a final coding scheme comprising of 13 codes which were able to retain both the narrative and contextual significance (A2.14.3).

Three transcripts were selected for the supervisorial team to peer code. Peer coding provided an opportunity to gauge the transferability of the findings, checking the researcher's interpretation of the interview material against that of his supervisors. The researcher met with his supervisors and one transcript was coded through a process of consensus. Once this was completed, the researcher coded two more interviews and passed the coded transcripts to his supervisors who commented on the application of the coding scheme. From this point onwards, every four to five transcripts were reviewed by the researcher to ensure the codes captured findings coherently.

As noted above, at times the development of the coding scheme fractured the interview material, often preventing the researcher from developing a holistic understanding of the temporal trends in sustainability action. In response to this, the researcher recorded a number of participant proformas (West, 2009) in order to create an 'analytic space' in which narrative themes, the flow of life course events and the passage of time could be accounted for. As with the development of the coding schemes, the development of the proformas was also iterative, with the researcher moving back and forth between the participants' accounts and the literature to work towards a stronger understanding of the research questions. Additionally, the development of the coding schemes provided new insights that were developed in the participant proformas. An extract from a proforma with identifying contextual information removed is provided in the appendices (A2.15).

Once the analytical process described above had been completed, the researcher worked to organise the findings arising from the coding scheme and

proformas. The three research objectives on experience, connection and action formed meaningful divisions for the results and discussion chapters. A table was created for each tree node with columns for each chapter and rows for individual participants. Material from each tree node was sorted into its relevant chapters with insights incorporated from the proformas. The appendices (A2.16) provide an annotated example of this process. These findings were further sorted by research question, and from this, the process of writing and redrafting the results and discussion chapters began.

3.5 Conclusion

This chapter reviewed the methodology, design, data collection and analysis undertaken in this thesis. This study adopted a pragmatic approach, which accommodates divergent paradigmatic considerations of ontology, epistemology and methodology, asserting that the researcher should select the methods suited to addressing the research aim and objectives independent of any predispositions they may have to particular paradigmatic standpoints (Denscombe, 2008). Pragmatism advocates both truth and reality, and hence the methodological approach adopted by research, are mutable (McCaslin, 2008). Thus pragmatism is able to accommodate the divergent bodies of research that constitute the conceptual framework proposed in chapter two to meet the research aim and objectives.

The life history method was selected because it was able to provide rich temporal and contextual insights into the participants' sustainability actions. While Cary (1999) questioned the ability of life history interviews to evaluate and present truth claims, the acceptance of a mutable truth and reality based on what works in practice asks the reader to consider these findings based on their applicability and not exclusive claims to truth or reality (Morgan, 2014).

Through the development of a rapport with participants, the life history method allowed the researcher to work towards the intersubjectivity required to elucidate the experiences which participants attributed to developing their understanding and action on sustainability issues. The employment of the actions matrix and the INS survey instrument facilitated the discussion of action and connection across time and space,

enabling their respective research objectives to be fully realised. After an extensive, abductive process of analysis, the following results and discussion chapters were produced.

Chapter four

Results and discussion I

Experience

4.1 Introduction

This chapter focuses on exploring the experiences which may influence how participants understand and come to act on the numerous sustainability issues that affect the world. Chapter three outlined the life history method which this study employed. The life history method allowed for the collection of detailed and contextualised qualitative descriptions of participants' experience (Merrill and West, 2009) and their understanding of sustainability issues. Additionally, the life history method enabled an exploration of the temporal factors that shaped their action (Uzzell et al., 2010).

As outlined in chapter two, this thesis regards experience in line with Dewey (1917), as a person's sensory interaction with the world. Research into significant life experiences (SLEs) asserted that certain experiences predisposed people to act in the interests of the environment (Chawla, 1999; Palmer, J.A. and Suggate, 1996; Tanner, 1980). Inquiry in environmental psychology identified the importance of connection to the natural world in determining a person's propensity to act on environmental issues (Frantz and Mayer, 2014; Schultz, 2002). Additionally, parallel research into the lives of people committed to addressing social issues established the importance of connection to other people (Daloz et al., 1996; Daloz, 2000). Although experience cannot guarantee responsible action (Daloz et al., 1996), the research outlined above illustrated that there are some striking commonalities in the lives of those who undertake environmental and social action.

This chapter seeks to understand the life experiences of people active in sustainability issues, discuss how these findings relate to previous studies and to establish if transformative learning theory can provide an adequate explanation of these life stories. The research questions addressed by this chapter are outlined in Figure 4.1.

Figure 4.1 Research objective and questions addressed by chapter four

Research objective one – To understand how experience influences the understanding of sustainability issues
1a How do the findings of this research relate to previous studies into significant life experiences and lives of commitment?
1b What are the conditions which facilitate the experiences described by this study's participants?
1c To what extent can transformative learning theory conceptualise the life histories described by participants?

The following sections in this chapter describe and discuss life experiences which the participants considered to influence their understanding of sustainability issues. Merriam and Clark (1993) note that life experience can result in improvements in skills and abilities, a change in one's sense of self or life perspective and transformation. At first some of the experiences may appear to have little direct relevance for sustainability issues, however it is important to recognise that these experiences may have shaped the participants' outlook, effecting how they both perceive and act on sustainability issues.

The first section of this chapter (4.2) collates the experiences of this study's participants (detailed in Table 4.1) along thematic lines. These themes provide an entry point into the lives of the participants, presenting one suggested path to understand and interpret this study's findings. The next section of this chapter (4.3) seeks to address research questions 1a and 1b focusing on elucidating the conditions which precipitate the experiences that result in changes in skills and abilities, sense of self and perspectives. The final section of this chapter (4.4) focuses on answering research question 1c, discussing experiences that result in transformation.

4.2 Experience

Participants described a variety of experiences across their life courses which they considered to either influence their outlook on the world or more specifically, sustainability issues. As discussed in chapter two, these experiences signify the creation or change of knowing and understanding which in turn may have an impact on connection and action.

A number of participants stories centre on action. In this chapter action is described with regards to its role in experience and the formulation and revision of knowledge (Kolb, 1984). In contrast, chapter six considers how action can be understood as an outcome of the elements and structures outlined by the actions framework developed in chapter two.

This section presents a thematic outline of experiences which could affect the ways participants came to know the world and its sustainability issues. The themes and constituent sub-themes were derived from the transcript coding process outlined in chapter three. The themes outlined encompass upbringing, education, significant others, activities and employment and media and society.

This chapter varies from the proceeding results and discussion chapters in that the findings are initially presented devoid of analysis. Although it is acknowledged that the researcher played a role in selecting and ordering the experiences, this initial presentation creates an opportunity for the reader to come to their own decision on the transferability of the findings (Morgan, 2007), whilst honouring the voice of the participants (Grbich, 2007).

Table 4.1 Outline of themes addressed in chapter four

Theme	Subtheme
Upbringing (4.2.1)	Background (p.71), location (p.72), activities (p.77), perspectives (p.79), siblings (p.82).
Education (4.2.2)	Location (p.83), excursions (p.86), subjects (p.87), teachers (p.88), university (p.89), returning to education (p.91).
Significant people (4.2.3)	Interest groups (p.92), mentors (p.93), friends (p.94), partners (p.94), children (p.96), stories of others (p.97).
Activities and employment (4.2.4)	The outdoors (p.98), travel (p.99), volunteering (p.101), employment (p.102).
Media and society (4.2.5)	Media (p.103), society (p.105), disasters (p.107).

4.2.1 Upbringing

Participants provided detailed descriptions of their upbringing. The participants' descriptions were organised thematically to illustrate their varied life experiences encompassing: background, location, activities, perspectives and siblings. Some participants explicitly attributed their earlier life experiences to what they had gone on to do in later life. This section presents evidence that illustrates how upbringing might shape how participants come to know the world and understand sustainability issues.

Background

People are embedded in histories which stretch back through the generations of their families (Daloz et al., 1996). Ethnic, environmental, social and economic forces among others form the context in which the participants lived their lives and constructed their stories. Some participants came from families in positions of wealth and others from poverty. Nevertheless, most participants described the environment in which they grew up as comfortable. Four participants, three women and one man, discussed experiencing some poverty during their childhood, the accounts of the three women are discussed below.

Elspeth is an academic in her early forties, she was brought up in Scotland and described numerous arguments between her parents about money difficulties as she was growing up. Elspeth stated that this led her to pursue a career in accountancy as she longed for the security this could provide. Stacey and Freya, two academics in their early thirties, also described how financial hardship during their childhoods led them to seek financial security during their mid-to-late teens. Stacey described vivid memories of her family having to downsize their home during the recession in the early 1990s.

In contrast, Robert was the eldest son of a well-to-do family with the expectation that he would take leadership of the family estate. Robert described how the requirement that he be schooled away from home led him to have a terribly upsetting childhood during which he engaged in many risky escape behaviours. Robert later went on to become a successful community worker in the west of Scotland, he described the impact of his early experiences as follows:

> "Being a community worker was about reconnecting myself into communities having been hoaked out at a very young age. The first third of my working life was working as a community worker with homeless people and people who lived in shocking poverty. A lot of that was reacting against my privileged background and that was very healthy for me, but hopefully for others too to some extent" (Robert).

The spectres of both poverty and plenty from childhood appear to leave lasting imprints on the lives of the participants they affect, shaping how they come to know and act in the world for significant periods of time, if not their entire life course.

A number of older participants also spoke about how the Second World War influenced their parents' perspectives and consequently how they were raised. Mark is a retired lawyer in his late sixties who has lived in the same town all his life. Mark described what he considered to be the impacts of the war on his parents' perspectives and parenting practice, he stated:

> "You are dealing with parents who have lived through the war and had friends killed... They were very much involved with it and survived the war... I think as a result of life being cheap following the war we were allowed to run wild and we did" (Mark).

Anna described her perception of the impact of World War Two on her parents as follows:

> "I think for my parents' generation, environmental concerns did not exist. They were born in the 1920s after the First World War and were young adults in the Second World War. Their concerns were mainly to do with peace and that sort of thing. So perhaps those things also influenced me" (Anna).

Both Anna and Mark described different aspects of the perceived influence of the Second World War on their parents and on themselves. Anna speaks about how it shaped the concerns of her parents towards peace, whereas Mark describes how the loss experienced by his parents and others led them to grant great experiential freedom to their children; Mark termed this as "life being cheap". Later sections discuss the direct impact of disasters on participants' perspectives and actions.

Location

The participants' life histories revealed that where the participants were raised was influenced by many factors. Some participants described how their parents chose to live in locations where they wanted to bring up children. A few participants described how the location of their upbringing was constrained by the availability of work for their parents. Participants discussed being raised in rural, suburban and urban areas. A general trend was that older participants described greater childhood independent mobility around their home localities.

Location also dictated the activities participants were able to undertake in their free time. Olivia is an academic in her mid-forties who was brought up on an antipodean

farm. Forty years ago the transport infrastructure in the area was very poor which made the farm remote. When Olivia was not helping her father with the farm she had great freedom to roam which she described as follows:

> "If you wanted to do anything you were left to your own devices because my mum was fairly unwell for bits of my childhood so we were not particularly supervised… I would be roaming all day, apparently just looking was my favourite expression. When someone asked what I had been doing, I would say just looking" (Olivia).

Rosie is an environmental project worker who is also in her mid-forties. Rosie was brought up in the west of England on a remote farm about ten miles from the nearest village. Rosie also described how this location gave her the freedom to roam. Additionally, Gethin, an academic in his forties who was also brought up during the 1970s in rural north Wales described it as "more innocent times" during which children were given freedom to explore without adult supervision. Gethin described his freedom as:

> "[The outdoors] was a continuation of my garden with no boundary between my garden and further afield… It was all just one continuous play area... I was allowed to fish off the beach but not in deep water until I was thirteen... My parents were aware of the risks but that was the only stipulation of a place I should not go. As for cycling I was allowed to go anywhere I wanted… It was normal, but that view changes" (Gethin).

Mabel is in her late twenties and was also raised in a rural area in the 1990s. In contrast to the freedom Gethin describes, Mabel stated that concerns over a local missing girl led her mother to curtail her freedom:

> "When I lived in the countryside... I did not have much freedom… I think one of the girls up the road went missing and was murdered when I was quite young so my mum was very protective and did not really want me wandering too far" (Mabel).

Younger participants described comparatively smaller childhood independent mobility ranges away from home. For example, Isla is in her late twenties and grew up on the edge of a large town on the west coast of Scotland. Isla talked about meeting primary school friends who were only about ten minutes' walk away from home. In contrast, Harry is in his sixties and was brought on the edge of an industrial town in central England. Harry described being able to roam far and wide from his town out into the

countryside. Participants who grew up in cities such as Jean did not seem to mention ranging beyond their gardens for outdoor play during their childhood.

Patrick is the only participant to have had limited access to the outdoors during his childhood. Patrick is an electrician in his forties living in a town in the east of Scotland. He described this part of his childhood as:

> "We grew up in a block of flats… To go outside and play there were seven flights of stairs. The high rises were all blocked together with car parks so you had to walk across a couple of busy roads before you actually got to green space and playing fields. So I spent a lot of my formative years inside" (Patrick).

Patrick also states this is why later in life he has always wanted and appreciated having a back garden, he stated "I have always liked having a little bit of ground that is [mine]". Apart from Patrick, all the other thirty-two participants reported having easy access to the outdoors for all of their lives.

As these accounts have illustrated, the location in which participants are raised appears to have effected their access to the outdoors and freedom to explore the world of their own volition. This could have impacts on how they come to know and act in the world, which is discussed in later sections of this chapter.

A few participants were raised across a number of locations due to their parents' occupations and/ or separations. Sally is in her late twenties and is an environmental charity inclusion worker. During Sally's childhood her father was in the Royal Air Force and was stationed in northern Scotland, Gibraltar and the east of Scotland. Sally described her childhood in Gibraltar as follows:

> "I was very adventurous, it was a lot of going out, exploring, climbing trees, getting into trouble by going on the top of oil tankers and swimming out to sea. This sense of being young, being free, was that we could just go and swim wherever and whenever we wanted" (Sally).

Sally compared her experiences in Gibraltar to those in Scotland, identifying that when she lived in Gibraltar she had much greater freedom to explore.

Participants who travelled frequently between separated parents narrated difficulties with attachment and belonging. During Patrick's childhood, his parents

separated for a ten-year period. Patrick described how his experience of displacement shaped his relationships with others:

> "The feeling I remember from my childhood is displacement because I never settled anywhere... My dad had some good jobs and was earning decent money but we moved an awful lot. It would be six months here, a year there and I was only there at weekends… So by the time you settled in, you were away again… So that makes it very hard for me to settle down and make attachments" (Patrick).

Freya's parents also separated while they were living in Australasia with one parent moving back to the UK before the other. Freya described how she felt travelling between her parents led her to have a long-term relationship in her mid-teens with a man whose family had been in the same place for a number of generations, she stated:

> "The fact that I had always been moving and not necessarily feeling part of a community led to a desire in my early teens to say I am here, this is it, all adventures stop here. So getting a Saturday job meant having to be in the same place and that was quite stabilising. Then wanting to have a sense of history in a place was important... My interpretation now is one reason for getting together with this guy was that his family came from the area, they had always been there" (Freya).

Both Freya and Patrick's accounts illustrate how different experiences of transience create feelings of isolation from both people and place. Both participants appeared to describe longing for a sense of belonging or connection which is tied up with both people and place. In the next extract, Stella asserted that this sense of belonging comes from the people in an area. Stella is a postgraduate in her mid-twenties who was brought up in northern Scotland. She commented on how she feels where she was raised had an impact on her:

> "Being a Highlander is something I am incredibly proud of... There is a sense of belonging and that is something shaped by the people, a social construction shaped by the society in that area and contrasts directly to somewhere else" (Stella).

Stella commented on how she felt being brought up in an area conferred a "sense of belonging". Stella believed this sense of belonging is created by the people who live in the area. A number of participants also described this sense of belonging, which could be considered connection to kin and kith (Griffiths, 2013).

The extract below from Wanda illustrates how geographical location may shape norms and the activities people undertake. Wanda is a postgraduate in her mid-twenties who was brought up in the western US. She has lived in the east of Scotland for the past six years. She described the impact of being raised in the western US as follows:

> "The northwest is a really outdoorsy place and people wear outdoor clothes as the normal cool clothes… Most people get excited about going hiking and going skiing, doing water sports... Living in the northwest has impacted on my dad and through him on me. But it is not just family background, it is also the location" (Wanda).

Wanda's description provides an example of how the themes of geographic location, family background and cultural norms interact to shape how she both understands and undertakes outdoor activities.

In the next account, Rosie described how she believes the soft and hard infrastructure of the city normalises consumption. Rosie described how being raised on a farm in a remote valley required her family to take action in managing their resource use. Rosie seemed to associate living in cities with a need to consume:

> "The way we lived [on the farm] was within the resources we had. We had a private water supply and if it had not rained for a while you had to economise… Similarly, we were so far from a shop that you had to think ahead and plan… So sustainability and living within your resources, I am used to that finite experience... Having a rural existence then going out into an urban environment and seeing the true impact of humanity is always more a shock to the system... It is partly because I am not a city person and a lot of consumption and shopping are by nature, city" (Rosie).

These quotes examined how participants' locations during their upbringing could influence their perceptions of the outdoors, activities undertaken, sense of belonging and resource use. The theme of location appears to interact to different extents with other themes such as family background, culture and trends over time. These appear to interact to shape how participants know and act in the world, which can influence their understanding of sustainability issues. Similarly, upbringing brought to the fore conversations about activities that participants' parents involved them in.

Activities

Participants discussed a variety of activities which their parents encouraged and supported them in. Family members had the potential to shape how the participants understood sustainability issues and knew the wider world through the activities they involved the participants in.

Many participants described parents who thoroughly enjoyed gardening and shared their enjoyment with their children. A number of participants described their parents growing fruit and vegetables in their gardens. Morven spoke about her parents' pride in growing food to eat. Below, quotes from Isla and Wanda described how their parents got them involved in gardening:

> "My dad used to give me my mum's old pair of high heels to walk around and drain the grass with" (Isla).

> "We would always go help with the work, I had a little itty-bitty wheelbarrow when I was little, that was always fun" (Wanda).

In the previous section Wanda described how she considered her interest in outdoor activities to be a product of the interrelationship between location, norms and family background. In the extract below Wanda talked about annual backpacking trips she took with her father and eldest brother:

> "The backpacking trips every summer became a reflection point because I talked to my dad about what I wanted to do for the next year. The next year we were on the trip I would be talking about what I wanted to do for the next year again and he would be like you know that you said that you want to do this last year and you have" (Wanda).

Wanda described how her father facilitated her reflection on her past year and helped her to build motivation and set targets for the next year. In the extract below, Adam talked about how his grandfather took him outdoors as a child. Adam is an environmental fundraiser in his forties, he described the wonder which characterised his childhood nature experiences:

> "In your formative years it is important to be exposed to the countryside like I was by my granddad, just travelling places, fresh air, going walking, wondering what the birds are wondering, what those fish are seeing, seeing the mountains in the distance, thinking I want to go there... It is something you could not do without an adult at that

> age. If you do not have an interested adult in your family you are never going to really explore that until you are older. When you are much older it would be a different experience" (Adam).

Adam believed the support of a significant adult during his childhood enabled him to have outdoor experiences that he would not have been able to undertake at that age by himself. Adam also stated that being a child imbues the experiences with a sense of wonder that would not be present if he had been older. Rory described how his parents got him interested and active in sailing and both Thomas and Gethin discuss how their families nurtured and supported their interest in fishing. Additionally, Andrew described how family members that brought him presents such as binoculars supported his interest in exploring the natural world.

A few participants talked about not spending much time in the outdoors as a family. Sally stated "we did not do a lot of big, challenging, outdoorsy stuff as a family". Though Sally did not do outdoor activities with her family, both her and other participants whose families did not engage with outdoor activities were still supportive and nurtured their interests. The support given to participants by their families is further discussed later in this section.

Some participants reflected on activities they undertook with their parents during childhood that they did not enjoy at the time but in hindsight have come to ascribe value to them. Jean stated "so when we were little we would always go for walks which we did not enjoy so much, now I look back on them I am glad we did". An excerpt from Thomas' interview explores this in greater detail:

> "Why are we walking in a great big loop to where we started? It was cold and I was tired and there were other things we could do. The point was lost on me from ages five to thirteen, it was the sort of thing I was made to do... But looking back on it now I see the value of going for walks... That was the time we spent together as family" (Thomas).

Stacey is a postgraduate in her early thirties who shares Thomas' sentiments. She described herself as someone who is not really interested in being outdoors. Below she reflected on her childhood experiences with family in the outdoors:

> "We would go and have massive family cricket games and a picnic and I remember thinking oh, I do not want to go. When I look back they were some of the funniest times.

> But at the time I thought well if I need to wee, where am I going to wee? And all those kind of anxieties that you have as a teenager or a child when you just want to be doing something else... It is funny because as I describe my experiences it makes me feel happy… I think it is because it connects me with family… I remember being in the park, I was with family, I was not alone" (Stacey).

Both Thomas and Stacey ascribed the value of these outdoor experiences on being with family members. However, Stacey is convinced that the outdoors has nothing to do with her positive memories of the experience.

Later in this chapter, the significance of a number of other activities undertaken by the participants is discussed. In summary, parents and family provide opportunities, encouragement and support which enabled the participants to undertake a number of activities during their childhood. Likewise, the perspectives and values of those who the participants were surrounded by in their early years can leave lasting impressions on how they understand the world around them and the sustainability issues that comprise it.

Perspectives

Participants described how the actions, perspectives and values of their parents had an impact on them. Gethin described the impact of family on how he understood and acted in the world:

> "Families are the place where you forge values, what matters, how one thinks about the world, to what extent one is tolerant… And what one does about that... My family experience was very good… So it was important for me to recreate a strong sense of family and a nurturing place for my children to grow up... My dad was very influential on my values, I saw how he treated people… I picked that up and internalised it" (Gethin).

Gethin described how his positive experiences growing up in his family led him to try to create a similar experience for his children. Gethin also talked about how his father was a role model to him. Rufus, a retired politician also discussed how his father who was a Royal Navy officer was a consistent example of dedication, service and hard work. Additionally, Patrick spoke about how he observed his male role models work hard:

> "The patriarchal figures in my formative years were all grafters. The lesson was that if you want something you work for it… Nobody is just going to come along and hand you something" (Patrick).

Sally discussed how her mother has often been a role model to her. Sally's mother works in what Sally described as "a challenging school with challenging pupils". Sally found inspiration in her mother's hard work. She associated part of her interest in social inclusion to her mother's work, but was unsure if concern for environmental issues ties into her family background at all. These examples illustrate that while sometimes participants are able to trace some of their values to their family, other times they cannot.

Participants also discussed how experiences during their childhood affected their perspectives as adults. Alice is in her late thirties and works for an environmental education charity in the north east of England. Alice described how when she was younger, her parents placed emphasis on spending time both as a couple and as a family in the outdoors:

> "My parents' relationship was formed through their shared love of going to the mountains and they were very romantic and they were always very open as a family with us about how much they enjoyed being in the outdoors as a couple… The important part of family, it is not things, it is holidays and time spent together in the outdoors and so that was a very strong message that came out to me but I might not have been aware of it at the time" (Alice).

Alice reflected on how her parents emphasised their love of spending time together in the outdoors through their actions and the inclusion of their children. It appears that the significance Alice's parents attached to time spent in the outdoors impacted on Alice's perspective. As with the discussion of parent supported activities in the previous section, Alice stated that she did not appreciate this until she was much older.

Matilda is a nursery practitioner in her fifties. She described how her parents' values of equality, influenced by their Christian beliefs played a role in shaping her perspective on race:

> "We were brought up with the sense that everybody is equal… We had an older friend whose daughter was about to marry somebody… [Another friend] said to me would you

> not be upset if your daughter wanted to marry a coloured guy? I went well no… Why would it upset me? Until then I had never really appreciated what racism was because I was brought up in a family where you would never think that about anybody. So although my parents' religious beliefs really freaked me out, I think that we were brought up in a beautiful way about accepting other people" (Matilda).

Matilda's description also illustrates that she took these aspects of her upbringing for granted while she was growing up.

Where participants encounter differences between themselves and peers during their childhood, the strength of family influence can negate the influence of their peers, particularly when this influence is perceived as negative. Extracts from Jean and Stella's interviews below illustrate this:

> "My friends did not have such a big impact on who I was. My family was decided on who they were and it was so different from my friends… [My friends] would come over for dinner and say it is really weird that your family talks about all the important things, because many of my friends parents tended not to debate with them like that" (Jean).

> "The way you are brought up shapes what you think is normal. I think you associate more with your parents than your friends. A lot of my friends are bad examples, drug taking, drinking, smoking, swearing, but I have stayed truer to my parents' vision of appropriate behaviour than my friends'" (Stella).

Although many participants felt family perspectives and values were strong and heavily influenced how they understood and acted in the world, a minority of participants defined their perspectives and values in opposition to those of their family. Ingrid is a postgraduate from the mid-western US, she described the influence of her family as follows:

> "How did my family shape me, I am everything they are not. They are very consumer-orientated like most people. They want to buy, buy, buy and they do not understand the consequences of their consumption" (Ingrid).

Nevertheless, the importance of parental support in the lives of participants cannot be understated. In Mabel's interview she provided a rich description of the support her parents provided her throughout her life and how they gave her the security to learn and act:

> "My mum was really good with encouraging my behaviour... So I would bring snails into the house and my mum would explain to me that they cannot survive in the house, they needed to be outside. So we would put them back outside... She did not tell me to stop, she encouraged me and allowed me to develop... She was always supportive and still is now with the work I do" (Mabel).

Mabel's extract above illustrates that her home environment was one where the presence of nature was both fostered and supported. Her parents allowed for and facilitated her reflective discourse on nature. They also provided her with opportunities to act on the knowledge she had acquired.

Many participants expressed gratitude for the support of their parents even when their parents could perhaps not comprehend the life choices made by their children. Anna and Isla's accounts are provided below:

> "We were not encouraged [to attend university], but my parents were very supportive of all the decisions that I made and never tried to put me off doing what I did even when they did not understand why" (Anna).

> "I have come to realise that my mum and dad are quite open minded, but they still have a really strong sense of what you need to do to be successful, to be hard-working and a good person. I have taken those ideas but not followed a conventional career path. They would like it if I was a little more conventional sometimes… But they have always been supportive in whatever I want to do" (Isla).

Family perspectives and values appear to significantly impact how participants know the world around them framing their interpretation of sustainability issues. A minority of participants identify their perspectives and values in opposition to their family, but most were able to identify at least some cognate areas. Support from family members is described as being crucial in enabling participants to act on their perspectives and values, especially during childhood when participants are dependent on their families for security. The final subtheme in this section examines participants' perceptions and experiences of their relationships with their siblings.

Siblings

A few participants described sharing perspectives with some of their siblings. For example, Robert described that one of his sisters shared his outlook on the world. Jean

also thought her siblings shared her concern for environmental issues. However, most participants described stark differences between themselves and their siblings. Despite similar upbringings, most participants thought they were very different to their siblings. The significance of sibling relationships and the differences are discussed later in this chapter.

4.2.2 Education

Across much of the Western world a significant proportion of time during childhood and early adulthood is spent in formal education (Organisation for Economic Co-operation and Development, 2014). The impetus of Tanner's (1980) original research was to inform public education strategies to promote the protection and conservation of the natural environment. This section describes participants' experiences of education to understand how it shapes their understanding of both sustainability and the wider world in which these issues are situated. The educational aspects of location, excursions, subjects, teachers, university and returning to education are outlined. Both the opportunity for education and the prospects it creates appear to have a profound effect on how participants perceive their world.

Location

Participants' life histories revealed that the place in which they were educated had a multitude of effects on how they came to know the world. As with the location in which participants are raised, the place they are educated can also be influenced by a variety of factors such as family wealth, poverty and availability of schools. In turn this has an effect on the experiences of the participants as they grow up, shaping how they come to know and act in the world. The next few paragraphs examine where participants were educated and also what this meant with regards to outdoor play.

Participants mostly described attending schools in the areas they were brought up. Some participants attended grammar schools, these are academically selective state-funded schools in the UK. A few participants won scholarships or were sent to private schools. Participants described having a variety of different experiences of

schooling, the following two accounts outline negative experiences faced by these participants in relation to the location of their schooling.

As previously stated, Robert was from a wealthy family who at the age of seven sent him away from home in the east of Scotland to boarding schools across the UK. His experience is outlined below:

> "There was a bit of a rupture where at the age of seven I was humped out of my own community and sent to a series of public schools… I did not have a particularly unhappy time, but in some ways I was unsatisfied and from the age of about thirteen onwards I indulged in quite a lot of drug taking and smoking" (Robert).

Robert's experience centred on being removed from the home community he was established in.

In contrast, Patrick's primary school teachers noticed he was academically gifted and recommended that he apply for a scholarship to attend a private school. Patrick's application was successful but he faced difficulties as he came from an impoverished background, his experience is described below:

> "I look back now and see it was a great opportunity but I ended up hating it… You had to wear a uniform so there was no hiding where I was going which meant when I left home in the morning I would get screamed and spat at and stuff thrown at me. I would get on the bus and get a wee respite… Then I would get off in town and it would start again" (Patrick).

Patrick described being harassed by people around his home and school areas as his uniform singled him out as attending a private school. Both Robert and Patrick ascribed their negative experiences of schooling to choices they made in later life. For example, in an earlier section Robert described how his upsetting experiences during childhood led him to social and community work.

Conversely, Isla described having good experiences at school. She attended a private school for the latter years of her secondary education because her parents made an active decision to send her there. Isla outlines her parents' reasons for sending her to a private school below:

> "My parents thought I would have more opportunities… My parents grew up in Glasgow and my mum thought it was weird that in [our town] we only had two ethnic minorities in thirteen-hundred people. I had never met a Jewish person and I was fifteen" (Isla).

Isla described that her parents wanted her to encounter people from more diverse backgrounds than she had previously. Her parents' ability to do this signifies access to financial resources that some of the other participants' families did not have.

Participants described engaging in a variety of different types of play during their break times at school. Play activities tended to be dependent on age, location and personal preference. The following extracts were selected to illustrate the varied nature of school play over time and by location. Dawn grew up in the 1970s and spoke about her experiences of free time during secondary school:

> "When we were at primary age we used to play like kids do… We used to play horses, we used to build jumps because we were allowed a lot of freedom and we used to build big barriers between some mature big holly trees and a hedge and make rows of jumps. I am sure the teachers never knew because it was quite far from the school" (Dawn).

The above extract from Dawn typifies the varied school break time experiences of many of the participants. Younger participants tended to describe having less access to natural environments during their break times. Geographic location also appears to affect school break time activities, with participants that attended rural schools reported having more access to green outdoor space, whereas younger participants who went to urban schools described mainly playing in tarmacked areas.

Freya grew up in the 1980s and compared her schooling in Australasia to Scotland when she moved there after her parents' separation:

> "My primary school in [Australasia had] massive open areas, loads of sports fields, play equipment. For school uniform in [Australasia] we were allowed to wear trainers, you had a hat to protect you from the sun, all your uniform was conducive to going outdoors… My school on the west coast of Scotland had no grass bar a little bit that you were not allowed to stand on and everything else was tarmac. There were no play items at all" (Freya).

In part, the contrast between the schools, their organisation of outdoor space and what play that made possible could be explained by their geographical and climatic

conditions. It is interesting to note that Freya commented on how the uniform design at her Australasian school appeared to facilitate outdoor play.

Excursions

During their childhood, participants would have spent much of their time at school. Therefore, school excursions created opportunities for them to make contact with the world beyond the classroom offering the opportunity to encounter difference in everyday life. Participants' accounts of school excursions were varied, but a broad declining trend was observed over time. Mark is in his sixties and was one of the older participants; he described primary schooling during the 1950s. In the extract below, Mark discussed how they would often leave the school without supervision:

> "We used to walk down to the river in the summer months and collect flowers … We went down there and back by ourselves, nobody else with us in case we fell in. We got a lot of discipline about safety, we were only six to ten then… Little traffic around to worry about" (Mark).

Perhaps the rural location of the school made these regular excursions possible. Rufus, the eldest participant in this study also discussed his memories of school excursions. Rufus attended a grammar school in central London and said that one afternoon a week they would take a train twenty miles out of the city to do sports. Rufus also recalled with fondness an annual camp during which they took field studies.

In contrast, Dawn went to primary school twenty years later in the 1970s and described not having the opportunity to undertake many fieldtrips:

> "We did not do many fieldtrips in those days. Some short field trips to look at trees and clouds in the school grounds in primary seven and a walk to look at wildflowers in secondary two" (Dawn).

Though Dawn described living in a rural location and having much freedom to roam, it would appear that this was not possible during school time. Dawn is around twenty years younger than Mark and they were both raised in rural areas in Scotland, attending village primary schools.

Harriet is in her thirties and went to school in an urban area of central Scotland. Harriet described how clubs made up for the lack of opportunities to go outdoors at school:

> "The outdoors did not feature in my formal education. Extra-curricular activities like the Duke of Edinburgh and Guides got us into the outdoors, but it was not a strong feature of my school education" (Harriet).

While the majority of participants who discussed excursions focused on describing the events, some participants placed the emphasis of their descriptions on going with their friends. Thomas and Stacey in their forties and thirties respectively, also stated they did not undertake many outdoor excursions with school. However, both comment that excursions were enjoyable primarily because of the people they were with, Thomas stated:

> "We were not outdoors much apart from one residential trip to the Lake District, and that blew me away. Though it was more about the relationships I was forming and the confidence I was gaining with my friends" (Thomas).

The importance of other people to significant experiences is explored later in this chapter.

Subjects

Interestingly, when discussing subjects most participants offered only a brief outline of the subjects they did or did not enjoy. On the whole, where discussion of subjects were detailed, it was often accompanied by discussion of an inspirational teacher (see below). Nevertheless, subjects appeared to be mentioned if they differed from what the participant considered the norm for teaching in that subject area. For example, in the extract below Anna detailed her experiences of the Nuffield biology curriculum (Nuffield Foundation, 2012):

> "Biology teaching was good… We did science by investigation and fieldtrips… We studied real stuff, sometimes we went to look at how the trees outside the classroom grew" (Anna).

Anna emphasised the importance of practical experience being influential in her enjoyment of subjects. Additionally, Anna noted that the fieldtrips that formed part of

her secondary school study of geography influenced her to go on to study ecology at university.

The arts and humanities also appeared to be influential in shaping how people understand sustainability issues. Alice described how her involvement in a school musical awoke her interest in the environment. Alice is in her late thirties and works as an area manager for an environmental education charity in northern England. Alice described how she took part in the musical Yanomamo at secondary school. Yanomamo chronicles the plight of an indigenous people caught up in deforestation in the amazon basin (Rose and Conlon, 1988). Alice described the impact of Yanomamo as follows:

> "Yanomamo introduced me to the plight of the rainforest. That was my first understanding of conservation and why it was important. That was when I knew I wanted to be an environmentalist… It was interesting how this was communicated to me through art" (Alice).

The common theme between the examples described above appears to be how embodied engagement and learning across the domains of knowing that goes beyond the style of academic learning (Stavenga de Jong et al., 2006) which has come to characterise schooling.

Teachers

Most of the participants emphasised the importance of teachers over and above other factors in education. Inspirational teachers appear to have a significant bearing on how their students come to know and act in the world. A number of participants including Wanda, Matilda and Thomas clearly stated that their interest in certain subjects was due to their favourable opinion of the teacher, Thomas stated:

> "My most influential teacher, and it was more about teachers than subjects, was my sociology teacher, he lit a fire in me… He helped me to see the bigger picture and I am not sure why he did and others did not… Possibly because he was younger, closer to our age and he had a youth work approach to learning which I enjoyed… He confided in us about his weaknesses and that was something I could relate to" (Thomas).

Thomas identified a number of reasons why he was able to relate to his sociology teacher including the teacher's personal characteristics and teaching style. In the extract

below, Morven outlined the lessons she received from a secondary school biology teacher. Morven is in her forties and now herself a biology teacher, she stated:

> "The biology teacher was amazing, you would go into his lab and it was a mess of rats' entrails in formalin. He would walk in late and ask what we were doing and we would tell him. Off the top of his head he would produce an amazing lesson… Looking back I was completely enthralled by this man, but now I realise it was just an image he was creating, which was great… If the weather was good he would take us to a fantastic moss land at the back of the school and we would have our biology class there" (Morven).

A number of participants who attended university spoke about the inspiring teachers they encountered there. Sally recounted how she was taught by a lecturer who would not travel by aeroplane. She believed that this example led her to limit her aeroplane travel to one return flight a year. Sophie also spoke about an inspiring teacher she met during her year abroad in the US. This teacher took many of the year abroad students rock climbing. Sophie stated this was important as during that time she was unhappy with her studies and felt isolated. Sophie's example illustrates how context can influence the significance accorded to these relationships. This section has illustrated the importance of teachers across educational levels in how participants come to their understanding of the world.

University

The majority of the participants who took part in this study attended university following childhood education. Only two participants did not attend university and three participants went to university after completing some employment. Participants who attended university later in life emphasised the importance of the subjects they studied in furthering their career or broader life plans (see Returning to education).

Participants across the age range of this study who attended university immediately following secondary schooling or a gap year described the significant impact it had on how they understood and acted in the world; though their discussions tend to consider university in its entirety as opposed to focusing on the subjects they studied. Andrew, Mabel, Jean and Wanda amongst others emphasised the importance of friendships formed at university. To illustrate the cross-generation similarities in the

perception of university experience, the testimonies of Andrew and Mabel who are in their forties and twenties respectively are outlined below:

> "University was less about the lectures and more about my friends and the people I lived with. They had quite a large influence on my life, in both good and bad ways" (Andrew).
>
> "I had three years [at university] and it was just amazing because I found lots of people who I really related to and I really enjoyed that, I still miss that now" (Mabel).

Additionally, Wanda and Jean spoke about the depth of friendship they formed with their first roommates, Wanda's quote is outlined in a later section on friendships. These statements serve to illustrate the importance of other people during this period in the participants' lives. Rory, Thomas and Freya among others discussed how university was an important period in their personal growth and maturity, Rory described his first attempt at undergraduate study as a significant period during which he 'grew up'. In addition, it is useful to recall that an earlier section of this chapter outlined how the influence of friends and family differed depending on if and when participants moved away from home to undertake employment or further study.

Some participants described how their dietary behaviours changed at university. Andrew, who was introduced above, works at a university in the east of Scotland coordinating projects to reduce the carbon footprint of the institution and local community. During his second year at university Andrew attended a presentation by an animal welfare charity, the extract below outlines how he considered this event to act as a catalyst in his transition to a vegetarian diet:

> "In halls most of my food was prepared but when I moved out I was cooking my own meals. I remember going to a talk… And being inspired to become a vegetarian… I wish I had done it earlier in my life but the change of having to cook your own meals and make decisions on what you are going to eat… I think making food choices and cooking my own food was a critical part of developing a long term commitment" (Andrew).

Andrew felt he should have been a vegetarian earlier "in some ways it seemed blindingly obvious". This sentiment is similar to that of Mabel whose experience of becoming a vegan is outlined in chapter six. Andrew described how the change in context, from having his meals prepared for him in university accommodation, to having to consciously buy and prepare his meals himself was significant in transforming his dietary habits. In

summary, university appears to be an influential period in many of the participants' lives for forming their perspectives and actions with regards to sustainability issues.

Returning to education

While it is important to consider the role of education in childhood and young adulthood, it is also useful to consider the experiences of those returning to education later in adulthood. A number of participants described returning to education in order to attain qualifications, knowledge and skills that would enable them to act on their beliefs. As university education often follows directly from childhood education, the extent to which it is intentional is often difficult to determine. This section outlines the experiences of those choosing to undertake formal education after entering work during their adulthood.

Mabel left school at eighteen to work as a graphic designer, though she did not find this work satisfying. Mabel decided she wanted to work in wildlife conservation and identified she needed further qualifications to do this, she stated:

> "I wanted to do something with wildlife and I needed a biology A-level to get into university. I went back to [college] and completed the A-level within a year. All I needed was an E to get into university, but I really wanted to do as well as possible so I pushed myself and did really well" (Mabel).

Adam described a similar experience to Mabel. After successfully founding and running a photography business for a number of years, Adam undertook a Bachelor of Science in environmental science and a Higher National Diploma in applied ecology simultaneously. Adam felt this illustrated his determination to work in the environmental sector.

Adam acknowledged that his relationship with his wife and increasing activism with Greenpeace played a role in his desire to work in the environmental sector and hence obtain the qualifications he needed. The role of other people in participants returning to education is just as prominent as it is at other levels of education. In the extract below Elspeth described how an academic mentor helped convince her to return to study:

> "When I passed my accounting exams I swore I would never do an exam again. Then I met [my academic mentor] and he persuaded me to do a Masters, I was hungry for that intellectual development… When I said no more exams I had meant accounting exams, I had not anticipated the possibility of doing other types of exams" (Elspeth).

Returning to education enables participants to further their interests and capacity to act on sustainability issues. In this section and the sections above, families and teachers among others have been shown to have a significant impact on how participants come to know and act in the world. The next section identifies the types of people beyond those previously mentioned who have been significant to participants' experiences of the world.

4.2.3 Significant people

Prior research into SLEs (Chawla, 1999; Palmer, J.A. and Suggate, 1996; Tanner, 1980) and lives of commitment (Daloz, 2000; Daloz et al., 1996) identified the importance of relationships with other people in developing and strengthening commitment to environmental and social issues. This section describes the other people participants identified as having a significant impact on them during their life course. Participants discussed significant experiences with interest groups, mentors, friends, partners and their children. In addition, a few participants also mentioned the impact of the life stories of other people on their own lives.

Interest groups

The participants' discussions of interest groups focused on how they enabled them to meet other people who shared their interests and develop these interests with them; the two examples outlined below touch on these themes. After university Mabel moved with her boyfriend from central England to central Scotland. The extract below describes how she joined a vegan group to find a group of friends:

> "I moved up here with my boyfriend, he already had friends and I wanted to find my own group. I looked online at my interests and found a vegan group in [city name]… Now I have close friendships with people from there" (Mabel).

Adam described his initial interest in marine mammals and how establishing and running the local Greenpeace group with a person who became his partner served to broaden his environmental interests:

> "I was initially interested in cetaceans and whaling and this led to wider environmental concerns… Once you become active with an environmental non-governmental organisation it opens your eyes to a lot of other issues which you learn about. You meet people campaigning and the blinkers come off, you realise what is out there" (Adam).

In the examples outlined above both Mabel and Adam emphasise the importance of people; while Mabel looked for a group of friends who share a common interest, Adam described how involvement with other people in activities such as campaigning served to strengthen his interest in environmental issues.

Mentors

Previous sections on upbringing and education illustrate the important roles parents and teachers play in mentoring participants, enabling them to develop to their fullest potential. In an earlier section, Elspeth described how an academic mentored her, inspiring her to return to education at postgraduate level. Other people can also take on a mentoring role; in the extract below Dawn described the mentoring role fulfilled by family friends among others:

> "We had family friends who would act as advisors. One of them was an art historian, the other was a professor of English. So older people like my mother's generation would offer advice. Also some of my university lecturers" (Dawn).

Dawn's statement illustrates the many different types of people who can undertake a mentoring role. Dawn discussed mentoring mainly in an academic sense, while in the earlier section on upbringing, Wanda and Patrick discuss how her father and his male family friends respectively mentored their personal development. From these results it is clear that many different people take on formative mentoring relationships which had significant impacts on participants' development and their experiences of the world.

Friends

Earlier in this chapter the comparative influence of friends and family on perspectives with regards to proximity was discussed. The following two extracts illustrate the qualities of friendships that participants identified. Participants predominantly discussed the influence of friends during teenage years and early adulthood. The extracts below from Andrew and Wanda provide exemplar descriptions of relationships with friends. During his teenage years, Andrew had a small but close group of friends who from about the age of thirteen would regularly meet up to watch videos and talk about a variety of issues:

> "We did not go round the streets, we hung out round someone's house and we talked and criticised and made funny videos… We shared a lot of fears… There was a lot of discussion about the world and we talked about our concerns, political or otherwise" (Andrew).

Both Wanda and Jean discussed how their roommates from the first year of university had had a significant impact on their lives, Wanda's quote is provided below as an example of this:

> "I lived with my roommate from the first year [of university] for the last four years. I think she influenced me a lot… I think living with her and being her friend has made me try to be a better person" (Wanda).

Both accounts illustrate the importance of spending extended time with other people, which could be considered both a determinant and reinforcement of friendship.

Partners

This section outlines the significant experiences of cohabiting partners mentioned by participants. Very few participants spoke about their partners, though those who did provide insight into this under researched area. Mabel, in her late twenties described her first date with her partner over five years ago at university:

> "I remember the first time we went for a drink and a fly landed in his beer. He gently picked it out… He did not know that was the same thing I would do and I had never seen anyone else do that… I thought what the hell, it was so [sigh], and then it flew away" (Mabel).

Mabel described how her partner's actions initially made her think that they may share perspectives and their relationship might be something worth pursuing.

In the next three extracts participants described how shared interests have been a feature of their relationships with their partners. Chloe, a secondary school teacher in her late forties described meeting her husband at university nearly thirty years ago:

> "My husband is into the outdoors as well, so we have shared interests. We met at university, we were both part of the diving club" (Chloe).

Adam and Elspeth met each other when they worked to establish a local Greenpeace group. The extracts below describe their respective impacts on each other's interests in environmental issues:

> "My wife is much more of a hard green than me... She helped me be aware of some of the issues" (Adam).

> "I have spent a large part of my adult life with my husband and the conversations and experiences we have had have probably shaped us. I do not think they have changed me but they have confirmed what I care about" (Elspeth).

Adam described how Elspeth has broadened his environmental interests. Whereas Elspeth described how Adam has supported and reinforced hers. Mabel also described how although initially she was a vegetarian, the relationship with her partner was a supporting factor in her transitioning to a vegan diet. It appears that younger participants in relationships and those who met when they were younger emphasised the importance of shared interests and perspectives.

In contrast, older participants appeared to be less concerned about shared perspectives. In the extracts below Andrew and Thomas, both in their forties, described how shared perspectives became less important with age. Thomas is a coordinator for an environmental education charity whose fiancé works in banking, he stated:

> "When you are younger you tend to seek out people that reinforce your values rather than challenge them… But I am at a stage in my life where I am comfortable with what I think and I am excited about what other people think, it is not threatening, it is stimulating" (Thomas).

Thomas described age as making him more accepting of his partner's perspectives. In contrast, Andrew described age as making a person better able to understand their partner's perspectives. Andrew met his partner at university and they have been married for over twenty years, he stated:

> "Getting married is a big commitment [laughs] and you have to look at your partner's values and interests. In the early years you are fighting these values but as you get older you understand more about yours and theirs" (Andrew).

Although older participants and those who have been together for a long time may be accepting and understanding of their partners' perspectives, when it came to action Rufus was still keen to make purchases in line with his values. Rufus is in his seventies, in the extract below he described how he 'subvert[ed]' his wife's aim to make the cheapest food purchases:

> "I am prepared to make compromises, I will not have an argument with my wife over where we buy food… But if I buy stuff before she gets it [laughs] out of my own pocket, I occasionally do that" (Rufus).

Rufus' statement, along with the other evidence presented in this section provides interesting insight into the complexities of the relationships between people in cohabiting partnerships in relation to sustainability perspectives and actions; the significance of this is discussed later in this chapter.

Children

Although a number of participants had children, they were rarely discussed. When children were discussed, participants either spoke about moving home to give their children 'a better life' or the general importance of creating a sustainable and equitable future for their children.

Gethin, Andrew and Morven lived in urban areas in southern England and decided to move to the east of Scotland to bring up their children. Earlier in this chapter, Gethin's description of his family upbringing was outlined. Gethin wanted similar experiences for his children growing up to his in rural northern Wales. In the extract below Gethin described his initial reasoning to relocate, with the birth of his son providing the final impetus:

> "I was working and living in London and I did not enjoy the busyness of the city and the lack of any seasonal change… So I knew I wanted to live outside London… When my first son was born we moved out of London to Scotland" (Gethin).

A few participants mentioned how children had formed or strengthened their resolve to contribute towards a sustainable and equitable future. In the quote below Patrick described observing this sentiment in other parents, he stated:

> "It is funny seeing people who are parents now who did not care until their child came along, now we need to think about the planet we are leaving for the child" (Patrick)

Stories of others

A few participants discussed the impact the stories of other people had on them. Ingrid previously worked as a volunteers' coordinator for a conservation project in the US. In the extract below Ingrid described the life of a volunteer she found inspiring:

> "One of my older volunteers was really inspirational… He had lived in the town his whole life… He was against anything progressive, a big hunter but did not care about sustainable hunting… He calls it his enlightenment, he had his first kid and realised the damage we are doing to the earth… Now he picks up the camera instead of the shotgun and writes into the newspaper all the time" (Ingrid).

Sophie studied abroad for a year in the US. During her time abroad she attended a conservation project where she heard a talk given by a conservationist, the extract below outlines Sophie's reflection on this talk:

> "This woman solo kayaked in the Everglades and she described how everything went wrong… Back in her real life the women described she would get infuriated by people who squeezed the toothpaste from the wrong end and things like that, but when you are in the wilderness and your radio has just broken, with little food supplies… Maybe there is no need to stress about the toothpaste tube… In our society no one is ever forced into a survival situation like that and it made me realise that perhaps I did not need to stress about the tiniest thing" (Sophie).

The stories of others appear to have both informative and inspirational qualities that were important for this study's participants. Chapter six develops this understanding, examining how a person's life may provide an example to influence the sustainability actions of others.

4.2.4 Activities and employment

Research into SLEs emphasises the importance of organisations and outdoor activities in forming environmentally responsible persons (Tanner, 1980; Palmer, J.A. and Suggate, 1996; Chawla, 1999). Occupation and travel are also considered to play a role in this and developing commitment to social issues (Daloz et al., 1996; Daloz, 2000).

This section outlines the impact of the varieties of ways participants spend their time in activities and employment, and how it might affect their understanding of sustainability issues in the wider world. This section reviews participant testimonies on the outdoors, travel, volunteering and employment.

The outdoors

The initial participant information sheets for this study asked participants to focus their life stories around outdoor experience. However, participants recounted life stories revealing broader themes outlined and discussed throughout this chapter. Earlier sections outlined the importance of outdoor activities during childhood and in education. The evidence presented in this section outlines some interesting trends. Participants described the importance of first-hand experience in the outdoors in fostering care for the natural world. Also the trend in the conception of 'the outdoors' over time is discussed.

The following quotes from Cara and Gethin described what they considered to be the value of outdoor experience in fostering care for the environment. Cara is an environmental project worker in her late twenties. Whereas Gethin described really enjoying being in the outdoors, Cara was nonplussed by it, they stated:

> "I do not think experience in the outdoors directly leads you to care more, but if you had never experienced it, if you had only seen a photograph, you would be unlikely to be bothered by it" (Cara).

> "I do not know how people can come to value national parks unless they experience them. If everyone is an urban dweller, why would you give a stuff about national parks?... I think experience of the outdoors is influential on how people feel about the environment and the extent to which they want to conserve it" (Gethin).

Although both participants have different outlooks on spending time in the outdoors, they both believe that there is something about first-hand experience which is better able to engender environmental care. Cara observed that first-hand experience goes beyond what can be achieved by learning about something from secondary sources.

The next two quotes from Gethin and Mark who are in their forties and sixties respectively illustrate an interesting trend into how spending time in the outdoors was described by different generations of participants:

> "It was not being outdoors, it is just what we did… So there is no indoors and outdoors… Now people are contriving to go outdoors… Ticking off the logbooks, it did not happen like that in the past" (Mark).

> "When I was growing up I did not think of it as the outdoors, it was just where I played… Now I do think of it as the outdoors" (Gethin).

Older participants do not talk about 'going outdoors' as a specific way to pass time, Mark described it as "just what we did". Previous extracts in earlier sections, such as those typified by Thomas and Stacey, illustrated that younger participants specifically speak about spending time engaged in outdoor activities. In the extract above, Gethin a middle-aged participant described that when he was younger going outdoors is just what they did. However, he stated that now he does talk about going outdoors. Gethin has noticed the change in how he thinks and speaks about the outdoors, but he is not sure when it happened.

Travel

Research into the lives of those committed to addressing social issues identified travel as significant in developing their commitment to this (Daloz et al., 1996; Daloz, 2000). Significant life experience research also recognised the value of travel in developing environmental commitment (Tanner, 1980). Participants described finding travel experiences significant for enjoyment, employment and escape. The significance of the experiences often spanned across these areas, and some travel experiences were considered to have significance in hindsight. Adam described his experiences in Nepal:

> "Travelling across Kathmandu when I was nineteen opened my eyes to a lot of issues… I have seen people dying of hunger, diseased people and dead people. It takes the

> blinkers off because when you are traveling you are living pretty close with these people. Even though you are a skint Westerner, you are hugely privileged compared to them" (Adam).

Anna and Rory also described experiences with extreme poverty which changed how they understood and acted in the world. These experiences and a number of others are discussed with regards to transformative learning theory later in this chapter.

Dawn is in her fifties and she described how a trip she undertook in the 1980s inspired her to change her career intentions:

> "A short hitchhiking trip to the Asturias in northern Spain where I chanced upon a coastal meadow filled with wild orchids. It was a defining moment which swung my career choice later that year" (Dawn).

Both Stacey and Freya described travelling extensively after completing their undergraduate studies. They explained their extensive travel saying they had spent much of their childhood and early adulthood in the same area. After completing her undergraduate degree, Stacey went on to travel and work abroad in North America and Australasia for a number of years. For much of her time abroad, Stacey worked in care and advocacy for children with special care needs. Stacey traced this interest to experiences with a former partner's child who had special healthcare needs.

Prior to her parents' divorce, Freya had spent much of her childhood in Australasia. Freya's described how her childhood experiences developed her appreciation of different people's cultures. Since her early teenage years, Freya had studied and worked in the west of Scotland. Freya began doctoral studies after completing her undergraduate degree, she described her reasons for traveling extensively during this period. After completing her doctorate, Freya took a post-doctoral position in Australasia:

> "During my PhD I did a lot of travelling for social reasons, I enjoyed exploring the world. My most formative experience was living in [Australasia] because it was so different to the past fifteen years but so similar to my early childhood. People went away for the weekend, it was orientated towards the outdoors and there was no real consideration of consumption" (Freya).

The evidence presented above illustrates the different reasons participants travelled for including work, enjoyment and escape.

Volunteering

Many participants discussed volunteering in terms of creating opportunities for them to engage with their interests. Along with returning to education, volunteering appears to play a significant role, particularly with young adults, as a means through which they create opportunities to develop, strengthen and act on their concerns and interests.

Some participants described undertaking 'targeted' voluntary work to address shortfalls in their experience or understanding in much the same way other participants described returning to education during adulthood. Isla talked about how her interest in environmental issues developed during her study abroad year. She was studying law and already had a work placement as a trainee solicitor secured for the following year, but she did not want to take this up. Additionally, she realised that she required further experience in the environmental sector. Therefore while completing her placement she volunteered twice a week for an environmental charity. During this time she became involved with campaigning on planning legislation for a national energy project. Isla stated that volunteering enabled her to realise that she could complete her studies as a solicitor and then specialise in environmental and planning law.

Iona is also a postgraduate student in her late twenties who previously wanted to work in the conservation sector. Prior to beginning her studies she undertook voluntary work with a Scottish wildlife charity to increase her employability in the sector. Iona described the difficulties of reconciling highly seasonal volunteer work with the need to be able to financially support herself.

Volunteering also allows those who are unable to engage with environmental or social issues in their working lives to have the opportunity to do so. After completing her undergraduate studies Ingrid returned home to work in her father's dental practice. She stated that this work did not "nurture her soul". As she did not find her employment fulfilling, she undertook voluntary work. Ingrid said that not only did she find the voluntary work satisfying, but it also enabled her to secure employment with an environmental non-governmental organisation.

As described above, volunteering can also create opportunities for paid employment. Since childhood Harry derived great pleasure from spending time outdoors. In his twenties, while working for a multinational agrichemical company, Harry successfully applied for a position in a national park as a voluntary warden. He found his out-of-work passion to take up an increasing amount of time over the next four years and successfully applied for a job as a countryside ranger:

> "I got to the point where being a voluntary warden interested me more than work. The logical thing to do to get better pay was to become a rep and I did not want to do that… I was in my twenties and single, I was not thinking in terms of a career, I was thinking of what I would rather be doing" (Harry).

Volunteering provides a myriad of significant experiences for participants to strengthen their understanding of, commitment to and action on sustainability issues.

Employment

Unsurprisingly most of the participants study or work in areas highly cognate to environmental and social sustainability, many seeing their careers to this point as building towards this line of work. The experiences outlined below illustrate how participants believe their career paths to have progressed. The findings illustrate the interplay between participants' long and short term experiences and how these interact to engender new understanding and action in the world.

Elspeth is an academic in her forties who has worked in academia for nearly twenty years. Prior to this she worked as a chartered accountant. She reasoned her initial desire to work as an accountant as follows:

> "My parents had fought about money so much during my formative years that I did not want to be in a position where it would be driving me. The narrative in the seventies and eighties in Scotland was chartered accountants would never be out of work, so it was a way of being financially independent" (Elspeth).

Earlier in this chapter, Elspeth's example among others were discussed as illustrating the long term impacts of childhood poverty on how participants came to understand and act in the world. Elspeth went on to describe how her increasing dissatisfaction with her job, the enjoyment and engagement she gained from her involvement in Greenpeace

and her increasing interest in returning to education led her to leave the accounting profession and engage with its reform at an academic level.

Prior to beginning her doctoral studies, Freya undertook a chartered accountancy traineeship. Freya developed her interest in sustainability issues during the penultimate year of her undergraduate degree. Freya described why she quit her job:

> "I had to quit that job, it was not exciting and you had to conform, to wear certain things. For a long time I had wanted to belong, but then I wanted to be different, or just find a way of being that was authentic, aligned to my sense of self" (Freya).

Harriet is a lecturer in the arts at a university in central Scotland. After completing her initial degree she described how she worked in public relations and did not enjoy it:

> "I temped for a year and realised I wanted to work in the public sector, not for a private company… I temped for six months for a public relations firm which I really did not like… It was profit driven… I did not like their values" (Harriet).

The three examples presented in this section illustrate how participants decided to change their employment when they found it not to be cognate with their perspectives.

4.2.5 Media and society

Prior research into SLEs asserted that media plays a role in developing commitment to environmental issues (Tanner, 1980; Palmer, J.A. and Suggate, 1996; Chawla, 1999). Participants described their interactions with media and society, stating why these were significant for how they understood sustainability issues and the wider world. Additionally, participants' accounts of the relationship between disasters and sustainability issues were also examined.

Media

This section focuses on examining the impact of 'media' such as books and television programmes on participants' understanding and action on sustainability issues. The final quote in this section examines a participant's perception of 'mass media' which is considered the transmission of information to a large number of people (Fourie, 2007).

On the whole, older participants did not speak about the impact of media. Dawn was the only participant in her fifties to discuss the impact of media on her environmental concerns. Dawn provided a detailed description of newspaper and magazine articles and scientific studies which she had found formative. In the extract below Dawn discussed the impact of media:

> "It was the late 1980s, there was quite a lot of conservation articles in magazines and newspapers like *The Sunday Times*… It opened my eyes to conservation because we had not been brought up to think about it apart from caring for the woodland and enjoying wild landscapes… It inspired me to undertake conservation projects" (Dawn).

Although younger than Dawn, Adam also grew up in the 1970s and was in his forties at the time this study was conducted. Adam outlined his perception that during his childhood, the only people he was aware discussing environmental degradation were travel writers and mountain climbers, he stated:

> "In my formative years there were not a lot of academic guys writing about environmental issues, it was mostly climbers. So you are reading climbing books talking about traveling and environmental degradation" (Adam).

More participants in their forties or younger discussed the impact of the media in detail. For example, Chloe recalled during her teenage years a documentary on Cambodia which had been very influential in nurturing her interests around human rights and other cultures. Notably the impact of the British broadcaster and naturalist David Attenborough, on participants' understanding of sustainability issues was raised by a number of them. The following quote from Andrew outlined his childhood appreciation for these documentaries:

> "David Attenborough was certainly an inspiration. I think the reason I went bird watching was because I was an avid fan of *Life on Earth* and *The Living Planet*… These programmes were important, but I would not have been watching them unless my parents were interested" (Andrew).

In the last sentence of the extract above, Andrew stated that he would not have been watching these programmes if his parents did not find them interesting, this point is also raised by Mabel and emphasises the importance of parental activities and perspectives discussed earlier in this chapter.

Later in his teenage years, Andrew described watching television documentaries about deforestation and the greenhouse effect. Andrew recalled a "fear for the continued existence of human life on the planet". The utility of fear in engendering sustainability thought and action is debated in chapter six.

Documentary television was not the only media participants found influential. Rosie described how growing up in the 1970s she watched *The Good Life*, a sitcom about a suburban couple trying to live self-sufficiently. As she grew up in a remote part of the Lake District she was able to relate to the theme of self-sufficiency and found the sitcom inspirational.

This section focused on the impact of media, particularly that of television programmes on how participants understand sustainability issues. Participants described media as providing inspiration and information, while also acknowledging the parental role in exposure to media during childhood. In the final quote of this section, Dawn outlined her perception of the temporal change in the influence of mass media over time:

> "The media is influential nowadays. In the past it was school teachers, parents and family friends, but the media is much more influential than it was" (Dawn).

Dawn believes mass media to have a greater influence now than it did in the past; the grounds for this assertion and the implications for how participants know and act in the world are discussed later in this chapter.

Society

This section begins by examining what participants perceive to be the impact of mass media on the society in which they live. Then this section describes what participants believe to be the impact of society on how people know and act. As outlined in the introduction to this theme above, few participants commented on the impact they consider society to have on how they understand the world; the potential reasons for this are discussed later in this chapter. The limited interview material available on the perceived impacts of mass media and society was assembled into a narrative and provided below. In the extract below, Ingrid asserted that mass media conveys a standard of what is normal, she stated:

> "What society depicts as normal is a big deal, my family watch shows where other people watch television, go shopping, buy stuff and have lavish lifestyles. This reinforces that this is desirable and makes people think it is okay" (Ingrid).

Ingrid described how mass media communicates norms grounded in consumption, making these lifestyles that have negative consequences for sustainability highly desirable. In the next statement Rosie clarified how norms proliferated by advertising drive consumption:

> "There is a need to conform to wider society in terms of stuff. Things we have bought in the last year, you never knew you had a need for until advertising… It is a societal driven perception of need, not an actual need" (Rosie).

Rosie asserted that advertising creates perceived needs that gain societal traction through the norms they create, though as she states these are not 'actual needs'. In addition to its central role in advertising, mass media was also considered to have an anesthetising effect. In the previous section Adam described how forty years ago the only way to find information about environmental degradation was in travel and climbing literature. However, Adam noted that presently this information is relatively easy to find, though there are many ways to avoid it. Adam stated:

> "Nowadays, the information is out there if you want to find it, but there are a lot of ways of avoiding it. You can stick your head in the sand and watch *X Factor* or *Big Brother* and not bother with anything that hurts your head a wee bit or that is not very pleasant" (Adam)

Adam noted how mass media provides a variety of diversions to enable escape from the realities of sustainability issues. In a similar vein Alice commented that communication technologies such as mobile phones and the internet can capture people's attention. Alice stated "we are assailed all the time by messages, deadlines and opportunities to communicate". Although the interviews for this study were conducted in 2012 and 2013, surprisingly there was not any direct discussion on the significance of social media in how participants and others know the world. Nevertheless, the role of social media and its interaction with mass media in the instances described by Adam and Alice should be recognised.

The final material discussed in this section addresses how one participant articulated the impact of wider society on how she understood sustainability issues in the world. Mabel described the cognitive dissonance that she feels is created by the government's emphasis on being green while still operating with economic growth as the overarching imperative:

> "You get mixed messages, the government set all these targets to recycle, reduce waste and become green. However the economic aspect of society goes against this. To make more money you have to generate waste and continue unsustainable behaviours. That creates confusion" (Mabel).

Mabel described the tension between encouragement towards sustainable lifestyles and the drive to increase economic wealth. Mabel identified that the desire to further the economy at any cost has negative impacts on sustainability, in her opinion invalidating the drive towards it in the first place. Mabel moved on to identify that this economic drive to be successful proliferates self-interest which she considered inimical to working toward sustainable lifestyles, she stated:

> "Everyone is self-interested, there is not much empathy for others. People are not doing things because it is the right thing to do but because they get something out of it" (Mabel).

Another participant also expressed similar sentiments to Mabel. Reflecting on the underlying message from mainstream society Sally concluded that "we are always encouraged to think about our self".

Disasters

The final subtheme in this section examines the role of disasters in shaping participants understanding of sustainability issues. Whilst very few participants commented on disasters, these findings are considered pertinent to the thesis because it enables an understanding of some of the motivations and barriers to action on sustainability issues.

Morven's quote typifies the general trend observed in the literature that some people in the Western world find it difficult to engage with the spatially distant problems of sustainability (Garvey, 2008):

> "Face to face interactions influence me more than hearing about a terrible flood or a miscarriage of justice somewhere I cannot imagine" (Morven).

An extract from Mabel's interview is provided below to offer insight into why some people in the Western world may have difficulty relating to the distant threats posed by climate change:

> "The horrible things that are happening worldwide are not happening on our doorstep. We think we can disregard something until it directly affects us" (Mabel).

Taken together, Morven and Mabel's quotes emphasise the importance of first-hand experience of disaster in motivating action on sustainability issues. The implications of this are discussed further later in this chapter.

The final quote in this section illustrates how a participant believed a disaster, however tragic, offered opportunities to reimagine society. After completing her doctorate, Freya undertook postdoctoral research in New Zealand for a number of years and was there during the 2010 Canterbury earthquake. In the extract below she reflected on her experience:

> "Society has a huge impact on what we know and how we experience the world… So many things seem predetermined and unable to change… New Zealand is a pioneering country but things often emulated the [UK]… After an earthquake shakes the buildings and things fall down, there is more of an opportunity to reorientate things" (Freya).

The role of disasters in shaping human experience is considered later in this chapter and their impact on action is discussed in chapter six.

4.3 Interpretation

This section discusses the results presented above in order to establish how experience influences the understanding of sustainability issues (research objective one). This section compares this study's findings to previous research into SLEs (Tanner, 1980; Palmer, J.A. and Suggate, 1996; Chawla, 1999) and lives of commitment (Daloz et al., 1996; Daloz, 2000) as well as examining the conditions that facilitate the experiences described by participants (research questions 1a and 1b).

To identify the similarities and differences between this study and previous work (research question 1a), the results of previous research were organised along thematic

lines identified from the coding process described in chapter three. Summary tables of previous research are presented in the appendices (A1.2, A1.3). The discussion of research question 1b is interwoven with the comparison to previous studies. Where appropriate, this discussion also examines the temporal trends which may influence the conditions which precipitate these experiences. It should be recalled that although some of the experiences discussed may not seem directly relevant to sustainability, their role in framing how participants engage with these issues should be recognised.

The discussion broadly follows the thematic structure of the previous section, though evidence is sometimes drawn from across the themes when discussing particular experiences or the conditions which provide its context. This reaffirms the unity of experience which shows little respect for researcher-imposed categorisations. The discussion provided is by no means exhaustive, and as discussed in chapter three has been influenced by a number of factors such as the researcher's positionality (Grbich, 2007) and frames (MacLachlan and Reid, 1994) which affect the aims and conduct of their research. Nevertheless, this discussion provides a comprehensive overview with a firm basis in the academic literature that takes a systemic approach (Eisenstadt and Hassan, 2009) to understanding what informs action on sustainability issues.

4.3.1 Upbringing

The following section discusses the participants' experiences during their upbringing, commenting on what may have shaped their perspectives and actions on sustainability issues and where applicable, their broader outlook on the world. Prior research into SLEs varies in the emphasis it places on family upbringing with regards to environmental concern and action. Whereas Tanner (1980) and Chawla (1999) rank the influence of family as the first and second-most significant influence, J.A. Palmer and Suggate (1996) considers it to be the fifth-most important influence. Nevertheless, these researchers agree that family provides the best setting for the conditions and experiences that they consider paramount to engendering environmental concern and action.

Although this study's participants came from a variety of economic and social backgrounds, the majority of participants gave the impression that their parents were able to provide them with both the physical and emotional support required for a

comfortable childhood. Many participants also spoke about their parents supporting the development of their interest and action on sustainability issues. These findings correspond with that of Daloz et al. (1996) who emphasised the importance of parental support above material wealth in both promoting childhood well being and fostering their children's commitment to addressing social issues.

Nevertheless, childhood experiences of poverty and wealth appear to have impacts on participants' perspectives and sense of self. Four participants, three women and one man described experiencing childhood poverty. The impacts of childhood poverty are multifaceted and last well into adulthood, if not for the entirety of the life course (Blanden, Hansen and Machin, 2008; Hirsch, 2008). The three female participants who experienced poverty during their childhood described seeking financial security in their early adulthood. These three women believe they ended up working in sustainability issues for different reasons encompassing involvement in interest groups, education and employment. Although they described similar experiences of trauma due to poverty during childhood, different life courses have brought them to their current work. Further research into the relationship between child poverty and the life course that moves beyond the analysis of large quantitative data sets (such as Poulton and Ramrakha, 2012) could provide insight into how the experience of child poverty interacts with sustainability actions and lifestyles.

In contrast, Robert described being brought up in a wealthy family who schooled him away from home from the age of seven. Robert described a sense of disconnection from his home community of place and asserted that this led him to engaging in risky escape behaviours later in his childhood. He went on to state that later in his life he pursued community and social work in order to reconnect with the sense of community he felt deprived of in his childhood.

The common theme between these experiences of poverty and plenty appears to be first-hand experiences of trauma. The trauma of these experiences of childhood poverty appeared to have had a significant influence on how these participants acted, potentially framing their approach to the sustainability issues they encountered in later life. The theory of post-traumatic growth (Tedeschi and Calhoun, 2004) discussed later

in this chapter provides further insight into this. Additionally, two of the study's older participants discussed what they perceived to be the impact of their parents' experiences of the Second World War on their upbringing. Both Mark and Anna described how their parents' traumatic experiences shaped their desires for their children and their wider concerns. Later sections in this discussion and chapter six examine the impact of disasters on the perspectives and actions of participants and those who surround them.

The geographic location of participants during childhood appears to contribute to a number of significant experiences they described. Research into SLEs (Tanner, 1980; Palmer, J.A. and Suggate, 1996; Chawla, 1999) identifies childhood time spent in the outdoors as the prime factor in the lives of people who are committed to addressing environmental issues. Wanda noted that the interaction between the physical characteristics of the north western US and her familial love for outdoor activities nurtured her interest in spending time outdoors. Additionally, this supports Griffiths' (2013) assertion that the interrelationship between affinity to kith (place) and kin (people) is instrumental in engendering formative experiences of nature.

However, the possibility of location to create meaningful experiences for present and future generations could be considered to be in decline. Across time, participants in rural areas mostly described having greater childhood independent mobility than those brought up in urban areas. Nevertheless, a decline in the reported size of childhood independent mobility ranges over time was described. One reason that could be inferred from this study is an increase in road traffic which Mark commented on. A recent report into childhood independent mobility (Shaw, Bicket, Elliott, Fagan-Watson, Mocca and Hillman, 2015) confirmed that parental concerns over traffic were the strongest reason why these ranges had declined in recent years. However, the reasons appear significantly more complex; for example popular literature such as Louv's (2009) *Last child in the woods* argued that increasing risk adversity and the proliferation of electronic entertainment over time have created a social environment that reduces the likelihood that children will both be allowed to and go outdoors to play. In support of this, Pergams and Zaradic (2006, 2008) argued that the development of electronic

entertainment has had a significant impact on the decline of nature-based recreation in the US and wider world. In summary, although this study cannot provide further illumination to the causes of decline in childhood independent mobility, it can support the findings of wider literature, confirming that opportunities for these potentially formative experiences are being lost.

The results also described how Freya and Patrick experienced their parents' separations and the impact of the transience this created on how they thought and acted. At first the relevance of these findings may be questioned, but it is important to note that R.G. Jones (2015) argued that connection to place is a determinant of a person's intention to act on sustainability issues. Both Freya and Patrick described a desire to feel connected to a community of place, and as transience clearly had a negative impact on their personal well being, it could also be further considered inimical to an ecological conception of self. The evidence presented by Freya and Patrick's testimonies reinforces the idea that there is a spatial element to connection. This is reviewed again in chapter six in which Cara describes how she considers her connection to place to inform her sustainability actions.

The activities participants undertook during their childhood depended on a variety of factors such as geographical location (discussed above), parental support and access to materials. As previously stated, research into SLEs emphasises the important role of family in supporting childhood activities in the outdoors (Tanner, 1980; Palmer, J.A. and Suggate, 1996; Chawla, 1999). Adam's testimony of childhood experiences in nature facilitated by a grandparent provides an archetype which supports the findings of earlier research (Tanner, 1980). Isla and Wanda also described how their parents involved them in gardening at an early age by providing adapted equipment that facilitated their participation. Louv (2009) outlined the importance of facilitating childhood experiences in the outdoors by tailoring the experience to be accessible and enjoyable for them. In addition, Wanda noted how backpacking trips with her father from childhood to the present day had given her an opportunity to reflect on her experiences during the year and set future targets for both her academic and extracurricular involvement in sustainability issues. Daloz (2000) identified that

facilitated critical reflection is an integral part of self-development with regards to maintaining action on social issues.

As with earlier discussions of family background and poverty, familial wealth or lack thereof can also impact on the activities a participant can undertake during their childhood. Andrew noted that his parents provided him with binoculars to enable him to pursue his interest in birding. Additionally, a number of other participants described how their parents supported them in outdoor activities such as fishing and sailing which require parental expertise or the resources to purchase such expertise, equipment and time. In contrast, Patrick described growing up in poverty where geographical constraints limited his access to the outdoors, he spent much of his free time at the weekend indoors reading. It is important to note that a recent report in the UK found that income level constrained access to the outdoors (Harvey and Julian, 2015). The authors identified that an annual family income of at least £45 000 was required to be able to enjoy the natural environment. This compares to the 2014 median gross annual earnings per person of £22 044 (ONS, 2014a). This disparity between these figures illustrates that the significant impact that access to financial resources can have on shaping the early life experiences of children. Chapter six further explores the role of financial resources in facilitating sustainability actions.

Research into lives of commitment emphasises the role of upbringing in developing childhood perspectives on social issues, asserting that if at least one parent is committed to addressing them, it is likely their children will be too (Daloz et al., 1996). Significant life experience research also asserted the importance of family role models with regards to engagement with environmental issues (Tanner, 1980; Palmer, J.A. and Suggate, 1996; Chawla, 1999). Nevertheless, the extent to which family influences the perspectives and actions of children is contested by developmental psychologists; the influences of genes, peers and parenting are acknowledged, though it is difficult to distinguish which if any, are the prime factor (Dunn and Plomin, 1991). This study cannot conclude definitively what caused participants to understand and act in one way or another. However, it can highlight the commonalities and differences between what

participants attribute their thought and action to; such is the utility value of research into memory (Chawla, 1998a).

Gethin's quote typified the influence that a number of participants perceived family upbringing to have on their values and perspectives. The results detail several accounts from participants of how they considered their upbringing to engender values ranging from hard work to social inclusivity and an appreciation of the outdoors. Of particular interest is Matilda's account where she described how her parents' value of equality permeated her life so much that she did not fully recognise it until it was challenged later in her life. This illustrates the potential of the life history method to create a space for participants to reflect on their upbringing and disclose influences they may not have appreciated at the time. Hence these insights would not have been captured in studies that aimed to assess sustainability values and action at a specific point in time.

The discussion of family perspectives provided participants with a space to discuss the competing influences which they considered to have shaped their perspectives. Although roughly equal numbers of participants placed the influence of family above friends and vice versa, some participants such as Iona seemed to identify that the emphasis was on who they spent more time with. Research into the potential for transition points to provide the impetus to change thought and action on sustainability issues identified leaving home and attending university to exemplify moments of change (Thompson, S. et al., 2011). S. Thompson et al. (2011) drew on Arnett's (1998, 2007) conceptualisation of 'emerging adulthood' which describes the life period between ages eighteen to twenty-five. Arnett (2007) argued that during emerging adulthood people create and modify their identities in relationship to those who surround them. Many of the participants appeared to describe relating their perspectives to family or friends respectively depending on who they were in closer physical proximity to during the period described as emerging adulthood. Therefore, this may provide one explanation for the differences in perception as to who had influenced their perspectives the most. The theme of emerging adulthood is returned to later in this discussion and also in chapter six.

As previously stated many participants emphasised that the support provided by their parents was invaluable. Hence this study supports Daloz et al.'s (1996) finding that parental support is crucial, especially when the life course of the parent deviates from that of the child. For example, both Anna and Isla described their vocational interest in environmental issues and how this resulted in them taking less-than-conventional career paths. Although they perceived that their parents did not fully understand their choices, they described that their parents supported them nevertheless.

Most participants who had siblings reported that although they had similar family experiences growing up, they considered their siblings to hold largely divergent perspectives. The reasons why siblings differ are complex and consideration of what psychology terms the 'nonshared environment' may provide some insight into sibling differences with regards to sustainability thought and action. The nonshared environment encompasses a number of factors from individual differences in how siblings interpret shared experiences to the markedly different influences of factors such as different peer groups and experiences outside the family (Plomin and Daniels, 2011).

4.3.2 Education

Previous research into SLEs identified education as the second (Palmer, J.A. and Suggate, 1996), third (Tanner, 1980) and fifth (Chawla, 1999) most formative influence in the lives of people committed to addressing environmental issues. Daloz et al. (1996) also emphasises the importance of educational environments in developing interest and action on social issues. The Organisation for Economic Co-operation and Development (2014) estimates that children in their member states, of which the UK is one, spend on average 794 hours a year in primary education and 905 hours a year in lower secondary education. This represents between nine and ten per cent of the total available time during these years. However, once sleep (NHS Choices, 2015) and personal care are discounted this becomes a much greater proportion of a child's time. Consequently education's potential to shape thought and action on sustainability issues should not be underestimated.

As with parental separation, negative experiences of schooling can also foster disconnection and isolation. Patrick and Robert discussed how the locations in which

they were schooled led to unhappy experiences which did little to support their childhood well being. Well being is an integral part of sustainability, with disconnection and isolation detrimentally affecting it (Kasser, 2009). In contrast, Isla provides a positive description of the impact of location. Isla described her parents' decision to transfer her to a culturally-diverse private school. Daloz et al. (1996) emphasises the importance of schools as safe spaces to recognise and develop relationships with people significantly different to oneself. Isla's parents appeared to have recognised the importance of this and Isla herself asserts that the experience was instrumental in developing her appreciation of cultural diversity, which itself is crucial in working towards sustainability (Daloz et al., 1996).

Changes to both outdoor play and excursions over time parallel the decline in outdoor activities previously discussed, as illustrated by the difference between Mark and Dawn's descriptions of excursions. In recent years research has identified a number of barriers to both teaching in the outdoors and participating in school excursions, encompassing concerns over health and safety, academic value and resourcing amongst others (Nicol, Higgins, Ross and Mannion, 2007). Nevertheless, both the academic and personal development value of education in the outdoors have long been recognised (Palmer, J.A., 2002). Additionally, the UK's Health and Safety Executive (2011) have worked to debunk the myths surrounding health and safety concerns. Gill (2010) argued that in the local education authorities he surveyed there had actually been an increase in the number of excursions registered with them. However when considering the spontaneous nature of the trips described by both Mark and Morven, there would be no way to account for these excursions which in the past may have fallen under the radar of the local education authority. However, Gill (2010) does suggest that in his opinion unfounded fears of litigation may decrease the willingness of teachers to lead excursions. Concerns over litigation and broader health and safety issues chime with the trends described by Louv (2009) discussed above. Additionally, participants also mentioned the significance of school excursions being influenced by their friendships, the importance of friendships is discussed in the next section.

As noted earlier, participants tended to elaborate on subjects where the mode of teaching differed to what they expected. As with both Anna and Alice's examples, subjects that were practical or engaged emotion proved memorable; this could be because they appeal to domains of knowing beyond the cognitive which can characterise schooling (Freire, 2000). Kolb's (1984; Kolb et al., 2001) experiential learning theory argued that practical learning through active involvement in the subject such as that described by Anna can be more educationally effective. Lawrence (2008) asserts that the affective engagement with the arts and humanities such as that experienced by Alice, can strengthen cognitive understanding; this is supported by research into the affective component of nature connection (Pooley and O'Connor, 2000). This discussion illustrates that subjects which are taught through different ways of knowing appear to have greater potential to create enduring memories, and that sustainability knowing engendered in this way may be more likely to persist over time.

Research in both environmental (Tanner, 1980; Palmer, J.A. and Suggate, 1996) and social commitment (Daloz et al., 1996) emphasises the role of teachers in fostering concern and action in their students; this study concurs with those findings. Thomas and Morven discussed their teachers' professional skills, Thomas stating "[h]e helped me see the bigger picture". Consideration of Vygotsky's (1978) theory on the zone of proximal development, whereby a teacher helps a student achieve understanding that they would not be able to on their own, could offer an explanation of how this is achieved. Thomas goes on to speculate that the reason why this teacher may have been able to get through to him when others could not may have been due to the teacher's personal characteristics. Sophie also commented on how she was able to connect with her teacher at a personal level. It appears that both professional and personal qualities are crucial in making a teacher influential. When taken into consideration with the discussion of subjects above and the importance of engendering knowing across different domains, it reinforces the importance of teaching in a holistic sense as identified by Sterling (2001) and Orr (1992, 2004a) in educating for sustainability. Discussion of the interpersonal qualities of relationships is continued in the next section.

As previously stated the majority of this study's participants went to university during their late teens and early twenties. The impact of leaving home to attend university was discussed earlier in relation to Arnett's (1998, 2007) theory of emerging adulthood. At university, away from the prior influences of the immediate family, young adults construct their identity in relationship with the people that surround them (Arnett, 1998). This is illustrated in the accounts of a number of participants who emphasised the importance of the friendships they formed during this period of their lives. In contrast to the significance assigned to relationships with others by the aforementioned participants, those who returned to university education later in their lives focused on describing its role in their personal development in relation to advancing career or broader vocational goals. This may also indicate the differing foci and needs for connection at different periods in a person's life. For example, someone going through the emerging adulthood period may be looking to define their self in relation to other people, through the connections they form with them. In contrast, an older person at university may be looking to develop a more authentic sense of self through achieving their goals; hence strengthening their connection to self.

Additionally, Andrew's discussion of the circumstances under which he became a vegetarian illustrates how the changes in the conditions in which a person lives can impact their sustainability thought and action. Andrew described how attending a presentation provided the impetus to change his dietary habits, while the independence gained from leaving halls created the opportunity to make this change. As identified by the literature into transition points once the conditions surrounding an action change, new actions can be enabled (Darnton et al., 2011; Thompson, S. et al., 2011); Andrew's change in conditions enabled his transition to sustainable dietary actions.

4.3.3 Significant people

Earlier sections on upbringing and education addressed the influential roles of parents and teachers respectively. As with previous studies into environmental concern and action, this research finds the role of other people in the significant experiences of the participants to be both multifaceted and crucial. While earlier research into SLEs (Tanner, 1980) primarily discussed the role of parents and teachers, both later research

(Chawla, 1999) and this study found that many other people such as mentors and friends had a significant role to play. Unsurprisingly, research into the lives of those committed to addressing social issues offers more details on the importance of other people, identifying nurturing mentoring relationships that characterise these traits (Daloz et al., 1996; Daloz, 2000).

Both J.A. Palmer and Suggate (1996) and Chawla (1999) identify the importance of interest groups in instilling environmental concern and action in adults, ranking them their fourth and third-most significant influence on the lives of environmentally committed persons. Accounts such as Mabel's illustrate the importance of interest groups in bringing together likeminded individuals; which was also identified by Chawla (1999). Having recently moved across the country, Mabel described a desire for friendship and the emotional support it entails. If action on sustainability issues is to be sustained particularly in times of upheaval such as moving across the country, as described by Mabel, then the emotional support that comes from friendships are crucial.

Additionally, Daloz (2000) notes the importance of interest groups for nurturing the skills and perspectives required to address social issues. The account provided by Adam illustrates the role interest groups can play in developing a person's understanding and action on sustainability issues. Daloz (2000) considers interest groups to be an important space for mentoring relationships to be enacted. Vygotsky's (1978) zone of proximal development elucidates how mentoring relationships can result in the development of sustainability understanding. Other people in the interest group take on the role of mentors and teachers and are able to stretch the understanding of the participant beyond what they might be able to achieve on their own. The relationships previously described between Adam and his grandfather, Dawn and her family friends and Elspeth and her academic supervisor among others characterise the mentoring relationship prised by Daloz (2000). This may suggest when examining the significant people mentioned by participants, it is just as important to grasp the qualities of these relationships.

The role of friends and cohabiting partners in developing and supporting a person's sustainability interests and actions is poorly understood and to date very little

prior research in this topic area has been conducted. Nevertheless, Daloz et al.'s (1996; Daloz, 2000) research provides some indications as to the interpersonal qualities that may develop a person's interest and action on sustainability issues. Accounts such as Andrew's emphasise the importance of friendships with regards to shared experiences spending extended periods of time together. Andrew described exploring ideas and emotions together in safe space; similarities can be noted between this and the mentoring relationships described above. However, when considering the accounts provided by Jean and Wanda among others, it could be noted that there is a qualitative difference between friendships and mentoring relationships. It appears that while friendships focus on shared experiences, mentoring focuses on personal development. Again, it may be useful to consider mentoring an important quality of relationships with different types of people that has implications for understanding and action on sustainability issues. While mentoring can provide the understanding needed to engage with these issues, friendship provides the sustained emotional support also required.

With regards to cohabiting partners, the apparent lack of previous research on the topic hinders discussion. However, it was interesting to note that participants who were in their twenties when they met their partners stressed the importance of shared interests and perspectives. If the body of literature on emerging adulthood is considered (Arnett, 1998, 2007), this could be explained by acknowledging that during this period in their lives while they are developing their identity, they do so with people that share their interest and perspectives.

In contrast, older participants described being at ease with their partners having differing interests and perspectives; though Rufus described his actions to subvert joint purchasing decisions towards sustainability. Rufus described how he was not prepared to have an argument with his partner over sustainability actions which may have negative monetary implications. However, it appears where the monetary difference is negligible and unlikely to cause an extended disagreement, Rufus was prepared to take action. Current psychological research seeks to primarily explain environmental behaviour at an individual level (Steg and Vlek, 2009), therefore understanding the dynamics of how competing values and perspectives on sustainability issues held by

partners affect decision making such as spending, would prove an interesting avenue for future research. Despite differences in perspectives and action, the support that comes from these long-term, intimate relationships is crucial to maintaining a person's commitment to addressing sustainability issues. This is supported by Daloz et al. (1996) that emphasise the importance of spousal support irrespective of any differences there may be between partners.

This lack of targeted research into the impacts of cohabiting partners on each other's sustainability thought and action may present opportunities for future studies as much of the prior research appears to focus on understanding sustainability action at the household level (Hobson, 2003; Abrahamse, Steg, Vlek and Rothengatter, 2007; Gram-Hanssen, 2010; Reid et al., 2011). The reason the household is more often studied could be the availability of background and comparable data and that the household provides a fixed, spatial unit for comparison. In contrast, the diverse nature of cohabiting relationships may make them less amenable to comparison. Nevertheless, the lack of easy comparison should not dissuade future researchers from exploring and developing this line of research.

This study also corroborates the findings of later research into SLEs (Palmer, J.A. and Suggate, 1996; Chawla, 1999) with statements from Gethin and Patrick supporting their findings that the impending arrival of a child can prompt a change in outlook on sustainability issues. Research previously outlined argued for the significance of transition points such as childbirth in influencing both a person's sustainability actions and broader lifestyle choices (Thompson, S. et al., 2011; Burningham, Venn, Christie, Jackson and Gatersleben, 2014).

The stories of other people and the understanding that can be gained from them lie at the heart of this research. Both the environmental and social strands of previous research sought to understand what experiences across the life course led people to take action for these issues. This thesis sought to collate the stories of others to identify these experiences. The stories of others described earlier in the chapter cover both the ordinary and the extraordinary, illustrating their potential to have implications on how people understand and act in the world. Ingrid's description of a volunteer who inspired

her, illustrates how people encountered in everyday life have the potential to prompt the critical reflection Daloz (2000) identifies as instrumental in reforming thought and action. In a similar vein, chapter six provides an extract from Olivia who described how she sees her everyday actions as an example for others. The accounts of everyday experience provided by Olivia and Ingrid's volunteer exemplify the ability of a person to learn from the example of others through observation and critical reflection, with imitation being a significant learning pathway (Martin, Carlson and Buskist, 2010). Additionally, Sophie described the impact of an extraordinary life story she heard. Sophie described the process of critical reflection, first she reflected on the other person's story and then applied the insight to her own life. Mezirow (2000) describes the process through which critical reflection on the stories of others provokes a change in a person's understanding and action, terming it narrative subjective reframing.

4.3.4 Activities and employment

The SLE literature identifies extended time spent in the outdoors to be the prime formative influence in the lives of environmentally-active people (Tanner, 1980; Palmer, J.A. and Suggate, 1996; Chawla, 1999). Many of this study's participants commented on the importance of time spent in the outdoors, as has been detailed in previous sections encompassing the importance of the outdoors to independent childhood mobility, parent-supported activities and school excursions.

A number of participants discussed the importance of first-hand experience in nature being influential in their consideration of environmental sustainability. Cara and Gethin went as far to state that without first-hand experience of the natural world a person would not be interested in protecting and conserving it. This parallels findings in SLE research and more broadly across perspectives in environmental psychology (Pooley and O'Connor, 2000), ecopsychology (Key and Kerr, 2011b), environmental and sustainability education (Orr, 1992, 2004a; Sterling, 2001) and philosophy (Gould, 2007). It could be theorised that first-hand experience of the natural world engenders knowing that reaches across all the domains of knowing with experiential insight interacting with both cognitive and affective domains. This could be contrasted with second-hand stimuli such as the photograph that Cara described; the lack of first-hand engagement may

suggest why this is less effective at engendering action. This point is developed further in a later section where the differences in knowing between first and second-hand experiences of disasters are discussed. Additionally, as discussed earlier in this chapter, if the opportunity for these outdoor experiences that appear to be crucial in developing both connection and action are in decline, then the impact of this predominant route to environmental concern and action would be severely curtailed.

Furthermore, this study noted an interesting trend whereby older participants rarely discussed 'the outdoors', while younger participants clearly identified outdoor activities in opposition to other activities. There could be any number of reasons why this occurred, from changes in outdoor play (Casey, 2007) and independent childhood mobility (Shaw et al., 2015) to the commercialisation of outdoor activities (Loynes, 1998). Understanding the reasons behind this is important because this change comes at a time when there is decreasing levels of involvement in outdoor activity (Pergams and Zaradic, 2006, 2008) and potentially misplaced concerns with regards to health and safety (Gill, 2010; Health and Safety Executive, 2011). Further research is required to clarify the conditions that precipitated this change.

Both Tanner (1980) and Daloz et al. (1996) emphasised the importance of travel in developing environmental and social responsibility. Daloz et al. (1996) identified that over three-quarters of their participants had travelled extensively during young adulthood. A number of participants in this study described experiences travelling which they considered significant. Adam, Anna and Rory described how their travel brought them into contact with cultures and situations beyond their everyday experience. Daloz et al. (Daloz et al., 1996; Daloz, 2000) notes that this experience of difference is invaluable in expanding a person's sense of self beyond their everyday experience to include others significantly different to them. This is essential if a person is to move towards an ecological sense of self that encompasses all humanity (Næss, 1985). Additionally, these experiences embody transformative learning which is discussed later in this chapter.

Travel can also provide opportunities for service which deepen a person's commitment to addressing sustainability issues (Daloz et al., 1996). Stacey described

how she spent much of her time abroad working in care and advocacy for children with special healthcare needs. Additionally, Sophie outlined a transformative experience she had while travelling that strengthened her commitment to environmental sustainability (discussed below). Taken together with the experiences above, Dawn's chance experience on the meadow in Spain illustrates that there appears to be something in first-hand experience of phenomena that is significant to a person's life course decisions that no second-hand source of knowing can replace.

Much like returning to education discussed above, volunteering was considered by many of this study's participants to allow them to nurture their interests and create future opportunities for them to act on sustainability issues. Isla described how volunteering enabled her to discover ways to apply her career in an environmental setting. Additionally, Ingrid and Harry described how volunteering created opportunities for employment. This conforms with both Chawla's (1999) and Daloz's (2000) findings in which they identify the potential of volunteering to create and develop both interest and activism.

Where participants did talk about employment as having a significant impact on them, it tended to be when they had taken active steps to change their lives due to dissatisfaction with the directions in which their careers were heading. This could be explained by acknowledging that this study primarily recruited people working in the environmental and education sectors. Nevertheless, it is interesting to identify the commonalities between the experiences of Elspeth, Freya and Harriet as all described dissonance between previous employment and their perspectives on sustainability issues. In changing their career paths they appeared to resolve this dissonance, as their actions became more aligned with their consideration of sustainability issues.

4.3.5 Media and society

Very few participants discussed media as having a significant impact on their interest and action on sustainability. This is interesting as the media has played an increasing role over time in the communication and debate on sustainability issues (Howell, 2013). Nevertheless this finding is similar to previous research into SLEs which ranked media as one of the least influential sources of concern and action (Tanner, 1980; Palmer, J.A. and

Suggate, 1996; Chawla, 1999). Whereas Tanner (1980) and Chawla (1999) discuss books and authors as being influential, this study found that participants who spoke about the media primarily focused on discussing the influence of television documentaries on nature and climate change. Additionally, as J.A. Palmer and Suggate (1996) noted, this study also found that it was predominantly participants in their forties or younger who discussed media as a source of inspiration. The trend that media is mentioned more by younger participants may be explained by acknowledging the increasing accessibility to television and associated media over time (Pergams and Zaradic, 2006). Furthermore, as coverage of environmental issues in the media has increased over time, people are exposed to it more often. Nevertheless, if the fallacy of the knowledge-deficit model of environmental behaviour change is considered, merely informing people about environmental problems does not necessarily lead to action (Kollmuss and Agyeman, 2002). This would suggest that other significant influences are required to engender action on these issues and may also suggest why in this and previous studies media is not reported as a significant influence. Additionally the evidence provided by Andrew and Mabel illustrates that to some extent parents determine what media their children have access to. Hence, if parents are not interested in the issues surrounding the natural world then their children may not be exposed to it in this way.

A small number of participants commented on how they considered interactions between mass media and society promoted unsustainability. Ingrid and Rosie described how mass media played a role in encouraging unsustainable consumption at a societal level. Ingrid described how mass media communicates unsustainable norms, while Rosie outlined how mass media portrays desires as needs. In recent years, technological advances have contributed to the proliferation of mass media, allowing marketing to reach intimately into the everyday lives of people across much of the world (Rettie, Burchell and Barnham, 2014). If the traditional aim of marketing is considered to be the practice of maximising sales and hence consumption, then its conflict with sustainability becomes apparent (Jones, P., Peter, Clarke-Hill, Comfort and Hillier, 2008). Furthermore, consideration of the values circumplex (Schwartz, 1992, 2006) would suggest that intrinsic and self-transcendence values aligned with sustainability action are

diametrically opposed to the extrinsic and self-enhancement values which marketing traditionally appeals to. However, recent research has illustrated that this relationship is more complex than previously considered (Kilbourne and LaForge, 2010).

Adam also commented that mass media and technologies provide a convenient distraction from engaging with sustainability issues. Similarly Alice commented on the pervasiveness of communication technologies in everyday lives. In his seminal theorisation of nature connection, Schultz (2002) argued that further human integration with technology would serve to deepen the divide between humans and the more-than-human natural world. It appears that the evidence presented by Adam and Alice illustrates the propensity of technology to disconnect people from sustainability issues and first-hand human interaction by mediating these relationships through technology. It is acknowledged that technology allows people to do more, connecting with more people, spaces and ideas despite being separated by distance and time. However it may be considered that due to their second-hand nature, these encounters are less experientially rich and therefore in terms of human contact are perhaps less fulfilling, which in turn has impacts for their utility of promoting well being. The next paragraphs explore the impact of disaster on how participants understand and act on sustainability issues and offer an explanation of why second-hand exposure to unsustainability and related concepts may not be as effective in promoting action on these issues.

The decades between Tanner's (1980) and later SLE research (Palmer, J.A. and Suggate, 1996; Chawla, 1999) has seen increasing awareness of environmental degradation aided by deepening trends of globalisation and all it entails (Baker, S., 2006; Dresner, 2008). However, very few participants commented on disasters having significant impacts on their sustainability actions. It could be theorised that this may be due to the fact that awareness, typified by second-hand knowing does not necessarily lead to action, as previously illustrated by the fallacy of the knowledge-deficit model of behaviour change (Kollmuss and Agyeman, 2002). The statements from Mabel and Morven would support this, as the disasters that can currently be attributed to climate change rarely have every day, visible impacts for many people living in the Western world (Garvey, 2008).

Disaster was described as having an impact on societal action by Freya, who witnessed the aftermath of the 2010 Canterbury earthquake in Christchurch. Parallels in the literature from both psychology and transformative learning provide a mechanism to explain how experiencing disaster can lead to changes in thought and action: Kasser (2013) draws on the concept of post-traumatic growth (Tedeschi and Calhoun, 2004) to explain how disruptive experiences that differ to everyday life can promote change in thought and action towards sustainability. Similarities can be noted between Kasser's (2013) disruptive experiences and Mezirow's (2000) identification that disorientating dilemmas can provide the impetus for transformative learning. Consideration of this provides a mechanism through which the role of first-hand experience in transforming thought and action could be understood. Additionally on a smaller scale, this may also offer insight into how transition points (Thompson, S. et al., 2011) provide opportunities to encourage people to undertake further sustainability action.

4.3.6 Conclusion

The previous section evaluated the findings of this study to ascertain how it compared to previous research (research question 1a) and what conditions influenced the experiences described by the participants (research question 1b). This section addresses each question in turn, highlighting noteworthy findings to take forward into the later chapters of this thesis.

The findings of this study broadly confirm those of previous research into both SLEs and lives of commitment. Interestingly but not unexpectedly, the results of this study confirm Chawla's (1999) assertion that concern and action on both environmental and social issues are intimately linked, vindicating this study's approach to treat these strands together under the broader concept of sustainability. The results and discussion presented above describe similar qualities and conditions across both social and environmental strands of research. For example, when considering the theme of significant people, prior research in the environmental strand depicted general trends in qualities and conditions without providing in-depth qualitative insights (Tanner, 1980). In contrast, this study was able to illustrate the parallel qualities in the interpersonal relationships with regards to both environmental and social issues.

Additionally, this study's findings' correlate with Daloz et al.'s (1996; Daloz, 2000) research which is interpreted as confirmation that the environmental and social strands share conditions of experience. Contemporary research by both Hards (2012) and Howell (2013) adds further support to the intimate link between social and environmental issues.

As discussed in chapter three, the conception and design of this study aimed to address much of the criticism SLE research faced at both epistemological and methodological levels (Gough, S., 1999). As this study addressed these criticisms and outlined broadly similar results to previous research it reaffirms the value and contribution of it. Particularly, this study's adoption of the life history method gave participants a unique opportunity for unconstrained recall, that was not present in some of the earlier methodologies employed by previous research (Tanner, 1980; Palmer, J.A. and Suggate, 1996). Chawla (1998a, 1999) emphasises the importance of unconstrained recall in allowing participants to freely reflect and speculate on the causes and outcomes of their experience, with regards to both sustainability issues and their broader outlook on life.

Previous research into the environmental and social strands of commitment placed emphasis on different periods of the life course in forming and sustaining action. While the environmental strand emphasises the importance of childhood for engendering concern and action (Tanner, 1980; Palmer, J.A. and Suggate, 1996; Chawla, 1999), the social strand has emphasised the importance of early adulthood (Daloz et al., 1996; Daloz, 2000). This study confirmed the findings of both strands of research, identifying that this discordance may be due to the difference between an experience that engenders concern and one that embodies action. Although as illustrated in this study experiences that engender concern can take place across the life course, this study noted that first experiences reported as environmentally formative tended to take place in childhood; whereas those that characterise social concern predominantly take place in early adulthood. In contrast, the ability to act on both environmental and social concerns of one's own volition cannot fully be realised until a person has more control over their action which mostly occurs when a person leaves home; this idea is further

explored in chapter six. Further targeted study, perhaps employing life graphing techniques (Parry, Thompson and Fowkes, 1999) could serve to elucidate the importance of these periods in the life course to developing and sustaining concern and action on sustainability issues.

This study elucidated a number of conditions surrounding the participants' experiences which are summarised in the following paragraphs. Above all, the primacy of first-hand experience in nurturing and sustaining both concern and action on sustainability issues was identified across the thematic areas delineated in this study. As with previous research, encounters in nature or with disadvantaged people were reported as being more influential on the participants' perspectives and actions than knowing derived from secondary sources. In a number of cases first-hand experience appeared to engender affective knowing and complimented participants' cognitive knowing; this could be considered providing evidence towards the epistemology of connection outlined in chapter two. Additionally, the different experiences described by participants appeared to engender connection at the different scales of the ecological self (Næss, 1985). Unsurprisingly significant experiences with other people develop connection to them, while significant experiences with nature instil connection to the more-than-human natural world. The issues concerning both scaling and the epistemology of connection are further explored in the next section and also in chapter five. Nevertheless, the potential for the same experiences to have different impacts on different people as evidenced by the accounts of childhood poverty and sibling differences should not be forgotten.

As outlined above, although previous research in the environmental strand noted the importance of other people in developing concern and action it rarely described the conditions and qualities that were influential (Tanner, 1980; Palmer, J.A. and Suggate, 1996). This study was successfully able to delineate the different groups of people who proved influential with regards to sustainability issues. However, more importantly this study was able to differentiate two important qualities of these interpersonal relationships which are support and mentoring. Other people who are particularly influential in the lives of the participants were able to provide both these

qualities which are crucial in developing and sustaining thought and action on sustainability issues.

As identified in an earlier section, elucidating the conditions situating the participants' experiences gave a rare opportunity to examine this area at a systemic level (Eisenstadt and Hassan, 2009). The discussion provided in the previous sections allowed for consideration of the wider context in which the participants' experiences were situated, allowing for the identification of potential intervention points to affect systemic change. For example, this study identified that formative experiences that are crucial to engendering interest and action on sustainability issues, take place across the life course in a variety of spaces. However, during childhood predictably upbringing and education take centre stage due to the amount of time spent engaged in these areas. Therefore, if families cannot provide their children with adequate support that upholds their well being, or if the education system is constrained to a mode of schooling purely focused on cognitive academic progress, then the multitude of formative experiences and the conditions which situated these as identified in this study will not have the opportunity to take place. Perhaps in order to fully realise sustainability, governments need to consider how policies indirectly influence people's capacity to understand and act on sustainability. It appears that the economic imperative enshrined in governments across much of the world (Jackson, 2009) needs to be challenged if concern and action for sustainability across society are to be fully realised. Additionally, as opportunities for outdoor and nature experiences appear to be in decline due to changes at a variety of levels, the potential for these formative experiences is lost. The final section in this chapter addresses research question 1c, taking a focused approach to assessing the utility of transformative learning theory in interpreting the life histories of this study's participants.

4.4 Transformation

4.4.1 Introduction

Previous sections of this chapter outlined and discussed the conditions and contexts of the life experiences of this study's participants. As identified by Merriam and Clark

(1993), transformation is one outcome of life experience. Daloz (2000) established that transformative learning theory can be used to explain some of the life experiences of people whose lives are committed to addressing social issues. This section seeks to extend Daloz's (2000) application of transformative learning theory to understand if it can explain some of the life experiences of people committed to addressing sustainability issues (research question 1c). Additionally, chapter two proposed a theoretical model linking transformative learning to other bodies of literature pertinent to this thesis. Therefore this section creates an opportunity to establish if these theoretical relationships are present in the findings from the interview transcripts.

4.4.2 Identifying transformation

Prior to discussing a range of transformative experiences outlined by participants, the testimony of a participant who was adamant she did not undergo any transformation is examined. It is useful to begin with this example as it illustrates the distinction between transformative and lower orders of learning (Bateson, 1972; Sterling, 2011).

Rosie is in her forties and grew up in a remote part of the Lake District in England. Rosie believed her interest in and action on sustainability issues was present and had been nurtured since childhood. Rosie recalled her mother being very interested in environmental issues and remembered titles such as *Silent Spring* (Carson, 2000 [1962]) dominated the bookshelves at home. Earlier in this chapter, Rosie's perception of the impact of her remote upbringing on her perspective on resource use was outlined. In the statement below, Rosie argued that she had not undergone any transformation:

> "There was not any revolutionary turning point where I thought, oh my god the world needs saving. It is just how I have always been. Having left home and never had enough money to have extravagant things… I am sure I could if I wanted to, I was just not interested in having lots of things… There have not been any turning points in my life, it has just been a natural progression… I think you find out more about different things and you realise they are an issue." (Rosie).

Rosie's insistence on a "natural progression" suggests that first and second order learning have taken place during her life course through which understanding and action on sustainability issues were strengthened. This extract and her previous statement on

resource use could be considered to typify first order learning through which she built on her previous understanding to make her more efficient and effective at dealing with sustainability issues. Her final statement in the extract above could encompass second order learning as she acknowledges that her assumptions and ideas can change as she finds out new information. However, Rosie's adamance that there was no "revolutionary turning point" affirms that transformative learning has not taken place, as transformation in both sustainability (Sterling, 2001, 2011) and adult education (Mezirow, 2000; Taylor, 2008) literatures requires the person undergoing transformation to acknowledge it taking place. This illustrates the subtle difference between transformative and lower orders of learning.

Additionally, Rosie's statement appeared to lack overt emotional engagement. In the accounts of transformative experiences which follow, the participants illustrate strong emotional engagement with the experiences they described in contrast to Rosie's statement above. A number of threads of research in adult education acknowledge that transformative learning is deeply emotional (Mezirow, 2000; Dirkx, Mezirow and Cranton, 2006; Taylor, 2008). Hence in Rosie's example above, this may further illustrate that no transformative learning has taken place.

The following examples illustrate how transformative learning theory can explain the life experiences of this study's participants. Examples were chosen to discuss various aspects of transformative learning theory such as the requirement for self-awareness (Bateson, 1972; Mezirow, 2000) and the contextual conditions required to engender and sustain it (Daloz, 2000). Emotional engagement has been identified as an indicator of transformative learning (Mezirow, 2000; Dirkx et al., 2006; Taylor, 2008); where this intersects with the affective dimension of the epistemology of connection is acknowledged. As this thesis is concerned with the role of connection to the self, other people and the more-than-human world in engendering sustainability actions (Næss, 1985), accounts of transformative experiences across these scales are outlined. Additionally, the relationship of transformative learning to other bodies of enquiry that this thesis is concerned with such as SLEs, nature connection and both psychological and sociological theories of action is also examined.

4.4.3 Connection to other people

Daloz et al. (1996; Daloz, 2000) established that experiences with people at a disadvantage to one's self engender transformation and build connection, encouraging people to act in a socially responsible manner. Rory's example is outlined below as it provides a clear illustration of transformative learning where his self-awareness meets Bateson's (1972) description of "Learning III" (p.220). Additionally, Rory's example provoked discussion around the interrelationship between transformative learning and this study's depiction of an epistemology of connection.

Rory is a postgraduate student in his late thirties. Prior to undertaking postgraduate study, Rory worked in the music industry and has lived most of his life in Scotland. In his mid-thirties Rory worked for an orchestra in Scotland, this account described how he came to leave the music industry. Rory described his increasing dissatisfaction with the music industry, noting that at this time he was involved in heated debates about the ethics of his organisation accepting sponsorship from the tobacco industry.

Rory described the experience which strengthened his resolve to leave the music industry. The orchestra received funding from the national government and an alcoholic beverages company to undertake a tour of India, Rory said:

> "[The trip] was very important because it really helped to crystallise in my mind stuff about equality and justice which I had increasingly become interested in" (Rory).

Rory described that while being driven between five star hotels, concert venues and private jets with armed guards, he witnessed extreme poverty. Rory commented:

> "India really opened my eyes, it made me feel quite frustrated and was a large part of the reason why I wanted to leave [the orchestra] and do something that was more useful to society and that contributed to change" (Rory).

The phrase "it opened my eyes" and Rory's sense of a call to action illustrate features that Mezirow (2000) identifies as typical of transformative learning. The systemic subjective reframing (Mezirow, 2000) in which Rory's attitudes to "equality and justice" are reformed, is similar in character to what Freire (2000) terms critical consciousness. Although a clear, disorientating dilemma is not a requirement for transformative

learning to take place (Mezirow, 2000), Rory's description of his experiences in India could signify such a dilemma. However, if Rory's earlier discontent with the tobacco sponsorship is considered, the disorientating dilemma becomes part of a broader, incremental transformation that Rory appears to have undergone. The disorientating dilemma and the critical reflection which Rory described meet two of Daloz's (2000) conditions for transformation. Additionally, Rory's expression of "frustration" displays a clear emotional involvement that was markedly absent from Rosie's example above, further supporting the assertion that transformative learning has occurred.

Daloz (2000) identified experience with people different to oneself to be instrumental in the transformative learning process; these experiences could either be incremental over time or as in Rory's case a stark, disorientating dilemma. It appears that these first-hand experiences, through an experiential learning pathway, instil knowing across the affective and cognitive dimensions, which later results in Rory taking action (behavioural dimension) when he is able to do so. Rory's account illustrated his cognitive engagement over time with the issues of equality and justice, though as examined in the previous section of this chapter, perhaps there is something about first-hand experience which is able to engender transformation. As suggested earlier with reference to experiences of disaster, first-hand experience appears better-able to evoke affective knowing that Pooley and O'Connor (2000) suggest is better at creating and sustaining sustainability action. For instance, Rory's disorientating dilemma described above appeared to illicit affective knowing exemplified by his "frustration". From this discussion, it appears that there are complex interactions between experiential learning, the multiple dimensions of knowing, action and transformation. Perhaps further, targeted research could untangle the complex interrelationships expressed above. Nevertheless, the interplay between these dimensions of knowing may lend support to the idea that an epistemology of connection furthers knowing and action on sustainability issues.

Eighteen months after his experience in India, Rory left the music industry and began postgraduate study later that year. The extended timescale over which the events detailed in this account illustrates the incremental nature of transformation that

situates the distinctive disorientating dilemmas which took place (Mezirow, 2000); this is evidenced by an number of examples found in this study. Chapter six draws on evidence surrounding Rory's transition to postgraduate study, during which Rory underwent a broader transformation in his knowing and actions on sustainability issues. Rory described how during this period he received mentoring and support from peers and teachers, Daloz (2000) argued that these conditions are instrumental in order for transformations in knowing to be realised in action. The following examples of transformative learning presented in this section build on the discussion provided above and illustrate how transformation can occur across the scales of connection from the self to the more-than-human natural world.

4.4.4 Connection to the self

Mezirow's (1978) initial research into transformative learning centred on how participants' understanding of their self and their learning changed when they returned to education in adulthood. Indeed it is self-awareness that distinguishes transformative learning from Bateson's (1972) lower orders of learning. The next two accounts of transformation are from Alice's interview. Alice is now in her thirties and works for an environmental education charity. Alice's first account focuses on how her personal transformation led her to work for a tourism and development organisation in Africa. This account centres on a transformation that enabled her to move to a more connected and authentic sense of self, which she believes led her to work in overseas tourism and development.

Aged twenty-five, Alice was unhappy with the direction in which her life was going. She enjoyed her career in radio marketing but when she was promoted to management she became disillusioned with it. Alice said this was because she went from working with people on the ground to sitting in boardrooms making decisions. Alice felt she had lost control of her life. Alice decided to quit her job and broke off a long-term relationship she had been in. Alice decided to travel and volunteer in Africa and eventually ended up working for the organisation she initially travelled with. Alice stated:

> "Ultimately I went back and worked for the company I had gone out for because I loved it so much, it had totally changed my head. I remember deciding I was never going to put on a suit again [laughs], I was never going to go the corporate way again" (Alice).

In Alice's example outlined above the disorientating dilemma could be located in her personal discontent with work. The occurrence of Alice's disorientating dilemma at a personal level, contrasts with Rory's which was located in his first-hand observation of other people experiencing poverty in the wider world. Adult education considers transformative learning to be developmental in the sense that a person moves to a more dependable understanding of their self and the wider world (Mezirow, 2000; Taylor, 2008). Hence the dilemma and eventual resolution for Alice appeared to enable her movement towards a more authentic understanding of herself. This could also be interpreted as Alice building a connection to herself, which is an integral part of the ecological self required for long term action on sustainability issues (Næss, 1985), as advocated by ecopsychology (Key and Kerr, 2012).

The visible disorientating dilemma at work which Mezirow (2000) terms an emotional subjective reframing, begins a process of transformation which finds resolution in Alice's new job. Again as with Rory's experience, emotions play a role in the dilemma which engenders Alice's transformation. It should be acknowledged that there may have been other currents in Alice's life which influenced this discontent but did not consciously register with her. Dirkx (1997; Dirkx et al., 2006) identifies that further enquiry is needed to address the unconscious dimensions of transformative learning; unfortunately the life history method employed by this study was unable to address these concerns. Nevertheless, Alice rendered her period of discontent with her work as significant, so it is possible to conclude that as far as she is concerned this emotional strife had a role in advancing her transformation.

4.4.5 Connection to the more than human-natural-world

While transformations in connection to the self and other people proved easy to discern from the interview transcripts, transformations in connection to the more-than-human natural world proved harder to identify. This could be because the many studies in adult education (Dirkx, 1998; Taylor, 1998, 2008) and lives of commitment to social action

(Daloz et al., 1996; Daloz, 2000) provide numerous examples of transformations in relation to the self and other people. In contrast, predominantly theoretical work examines transformative learning in relation to the more-than-human natural world (O'Sullivan, 1999; Sterling, 2001, 2011). The following three examples explore different aspects of transformation with regards to participants' relationships to the more-than-human natural world. Alice's second transformation highlights the integral role that action plays in the learning process.

Encounters with environmental degradation

After working for the tourism and development company for a number of years, Alice returned to her home in northern England. During her time abroad Alice developed interests in outdoor and environmental education and became very passionate about them. Alice spoke about an experience of environmental degradation that strengthened her commitment to action on sustainability issues:

> "I have always been [environmentally] conscientious but going to [the Isle of] Rona was quite pivotal in that it started to crystallise [in me] a need to take action. I remember feeling very upset the day we walked across the beautiful beach and there was just crap everywhere, fishing nets and rubbish" (Alice).

This second transformative occurrence from Alice's interview illustrates that transformative learning can be an incremental life-long process during which one can undergo several, distinctive transformations. As with Rory's experience of extreme poverty, first-hand experience of environmental degradation in the wider world appears to have a role in transformative learning. Emotional engagement is evident in Alice's expression of "feeling very upset"; by drawing on Mezirow (2000) and Taylor's (2008) assertion that transformative learning is deeply emotional, this would attest that it has taken place. As with Rory's example outlined earlier, this raises the question of the relationship between transformation and the epistemology of connection. The first-hand experience of environmental degradation appears to evoke affective knowing which compliments Alice's pre-existing cognitive understanding, empowering her to take further action (behavioural dimension) on these issues.

Furthermore, the experience described by Alice typifies the reporting of experiences of environmental degradation being significant in the lives of those committed to environmental action as reported in later SLE research (Palmer, J.A. and Suggate, 1996; Chawla, 1999). This adds weight to this study's suggestion that transformative learning is one pathway that could be used to explain how SLEs occur.

Other encounters with the more-than-human natural world

Thomas's account of transformation outlines how he came to recognise his interdependency on the more-than-human natural world. Thomas is in his forties and also works for an environmental education charity. After graduating in his twenties he spent five months traveling around Australia. Thomas commented that at the time he felt "quite rudderless and directionless". Thomas's father had suggested he join the army, though Thomas did not want to do this. Thomas described an experience which prompted him to reflect on where his career could take him:

> "I remember lying on my back in a botanical garden in Melbourne with about three months to go before I returned to England, I still had no idea what I wanted to do. Just watching the birds and making a connection with my love and affiliation for nature and being outdoors. It was the beginning of my first steps, realising why should I search for a career when I can follow my interests… [The birds] are a constant reminder that I am part of something bigger" (Thomas).

Thomas's disorientating dilemma appeared to occur around the uncertainty over his future as he realises that the expectations of his father did not match with his own. Thomas appears to undergo a long process of critical reflection which finds resolution in his recognition of the interconnections between himself and the more-than-human natural world "[the birds] are a constant reminder that I am part of something bigger". The subjective reframing which the experience in Melbourne engendered has made Thomas's concept of self more "inclusive" (Mezirow, 2000, p.7). Strands of research in both environmental psychology and ecopsychology assert that it is by coming to see the more-than-human natural world as part of the self, that people become able to take sustained action to protect and conserve it (Schultz, 2002; Key and Kerr, 2012). Again, this illustrates that transformative learning theory may provide a model to understand

how significant experiences come to form people who are committed to addressing both environmental and broader sustainability issues.

The role of context in transformation

Sophie's account of transformation illustrates the importance of context, both in supporting the transformative learning process and enabling action on the perspective gained. Sophie is an environmental law undergraduate in her twenties. Sophie described how her experiences during her year abroad developed her understanding and action on environmental sustainability. Sophie described that prior to her year abroad she had felt very anxious about her studies, work and relationships with other people. Sophie described two experiences that were part of a conservation project she undertook during spring break. Earlier in this chapter, Sophie outlined the importance of hearing a talk about a dangerous journey undertaken by a conservationist. This is an example of what Mezriow (2000) terms narrative subjective reframing in which transformation has partly been brought about when Sophie reflects on the conservationist's experience and applies it to her own. Sophie then described how she came to see herself as a small part of the wider world, she stated:

> "I was with a group of really open, American environmentalists who were sitting round a camp fire saying really flowery things. And they were like your turn Soph [*sic*] and I am an English person who cannot bear to say anything gooey. It was just being in that environment… The stars were so bright, there was no light pollution, you could see everything and it just made you feel so small… It put into perspective what was important… It made me realise that I stress about the tiniest, little thing… It is just not worth the stress" (Sophie).

At the start of Sophie's statement she acknowledges that this experience happened as part of a group of people. Daloz (2000) identifies a mentoring community to be crucial to facilitating the transformative learning process, in addition to the support of those on the conservation programme outlined earlier in this chapter Sophie described the support given to her by a particular teacher during her year abroad. This illustrates that a number of people were involved in her transformative learning process supporting the

assertion that it is an inherently social process (Freire, 2000; Mezirow, 2000; Taylor, 2008).

It is interesting to note the physical settings of the space in which the experience takes place. Sophie stated that "[t]he stars were so bright, there was no light pollution". This would only be possible in area that had seen little, if any urban development. Early research into SLEs (Tanner, 1980) stressed the importance of "pristine environments" (21), suggesting that the physical characteristics of these environments could facilitate transformative experiences. This is in part the premise that programmes such as the World Wildlife Fund's (WWF UK) *Natural Change* project are based on (WWF UK, 2009; Key and Kerr, 2011a, 2012). Additionally, the transformative process may also be engendered in the experiences different to Sophie's everyday life, as Daloz et al. (1996; Daloz, 2000) note that it is in encounters with difference that people revise their deeply held perspectives. Other participants discuss undergoing transformative experiences that affirm their understanding of their interconnection with the more-than-human natural world, these are outlined and discussed in chapter five.

Daloz (2000) asserts that opportunity for action is the final condition for transformation to be realised. Writing from a sustainability perspective on transformative learning, Sterling (2001, 2011) asserts that transformation cannot be said to have taken place if no action occurs. Freire's (2000) consideration of praxis would concur with Sterling's (2001, 2011) assertion and later inquiry in adult education also takes this standpoint (Mezirow, 2000; Taylor, 2008). Sophie described how her experiences during her year abroad empowered her to transition to a vegan diet. In addition to the support provided from people outlined above, she described how while living and traveling on the west coast of America she had easy access to vegan stores and restaurants. She noted that since returning to the east of England it had been much harder to access such specialist stores and restaurants. Location is just one factor that has a bearing on a person's ability to act on the transformation they have undergone. Although Mezirow (2000) believed it was impossible for a person to revert to their original perspective, both psychological and sociological theories of action emphasise the need for action to receive sustained support if it is to be maintained (Darnton et al.,

2011). Chapter six explores the role of the elements and structures that enable actions such as Sophie's vegan diet in greater detail.

4.4.6 Conclusion

The discussion above illustrates that transformative learning theory can provide a mechanism to interpret the life experiences of participants towards understanding the significance and the context in which they take place. The life history method complements the search for transformative moments and periods, as it requires participants to recall and reflect on their experiences and communicate their interpretation of the meaning with the researcher. In recalling, reflecting and communicating to the researcher, the participant discloses if the experience promoted the change in perspective and action which are the hallmarks of transformative learning (Mezirow, 2000).

However, it should be noted that in striving to identify self-awareness, by which participants take ownership of the changes in their thought and action, the context in which those changes came about may be obscured. This is because people have a tendency to overestimate their agency with regards to the opportunities and constraints which frame their behaviour (Johns, 2006). The incidental follow-up questioning employed by the life history method in this study was able to shed some light on the context surrounding each participant's transformation. This exploratory method could be developed with targeted questions around the process of transformation in order for the role of context to be further elucidated.

This section found that the transformative experiences which participants appear to undergo always strengthen connection to the self. This is not surprising, as the adult education literature describes transformative learning as being developmental in the sense that the person undergoing it moves towards a more authentic and dependable understanding of their self (Mezirow, 2000; Taylor, 2008). These transformative experiences also appeared to build connection with other people and the more-than-human natural world, illustrating that transformative learning theory could provide an explanatory mechanism of how people work towards an ecological conception of their self. In illustrating that transformation can explain the life

experiences of these participants, it offers a mechanism by which SLEs can be explained. The relationship of transformation to action also indicates the importance of understanding what bounds action in attempting to ascertain if transformations can be sustained over the long term.

This section explored how transformative learning theory could be used to understand the life experiences of participants, establishing that through building connection to the self, other people and the more-than-human natural world it is able to support knowing and action for sustainability. The next chapter explores the different dimensions of connection and evaluates the epistemological model of connection proposed in chapter two outlining its relationship to sustainability action.

Chapter five

Results and discussion II

Connection

5.1 Introduction

This chapter seeks to understand how connection is experienced, focusing on understanding nature connection, its determinants and identifying barriers to achieving and sustaining connection. Chapter four identified that experience has the potential to foster connection at a variety of levels with regards to Næss's (1985) conception of the ecological self. Additionally, while prior research into significant life experiences (SLEs) espoused a link between experience and action (Tanner, 1980), chapter four further illustrated that the concept of connection could provide a link between them. It is acknowledged that in order to work towards sustainability, connection to the self, other people and the more-than-human natural world needs to be engendered in line with the ecological conception of the self (Næss, 1985). However, this chapter focuses on discussing nature connection which is defined as the extent to which people see themselves as part of the more-than-human natural world. There is currently great interest in nature connection at public, academic and policy levels. Additionally as this study employed an environmental psychology survey instrument to assess connection to nature as a conversational tool, it was considered appropriate to analyse the wealth of data this generated.

Nature connection has enjoyed much attention in the popular (Louv, 2009; Griffiths, 2013), non-governmental organisation (Bragg, R. et al., 2013; RSPB, 2013), policy (DEFRA, 2011) and academic press (Cheng and Monroe, 2012; Tam, 2013). Over the last two decades there has been a growth in research into nature connection in environmental psychology, with the development of a number of different techniques to assess a person's connection to nature (Brügger et al., 2011; Tam, 2013; Frantz and Mayer, 2014). The origins of enquiry into nature connection can be traced beyond

environmental psychology to fields of study such as environmental education (Scull, 2008), philosophy, sociology and social anthropology (Schultz, 2002). This chapter argues that connection to the natural world through knowing and acting on the challenges the world faces (e.g. wicked problems, Levin et al., 2012), can realign human development along a sustainable trajectory (Næss, 1985; Roszak et al., 1995; Schultz, 2002).

This chapter examines how participants describe nature connection and identify the potential barriers to achieving connection. Additionally, this chapter seeks to understand how the life history method can provide a temporal perspective on nature connection across the life course. The research questions addressed by this chapter are outlined in Figure 5.1.

Figure 5.1 Research objective and questions addressed by chapter five

Research objective two – To understand how nature connection is experienced
2a) How do participants describe their connection to nature?
2b) What do participants identify as barriers to nature connection?
2c) What does the life history method have to offer the understanding of nature connection?

Chapter two developed an epistemological perspective on connection that is used to bridge the understanding of significant life experiences to sustainability action. Schultz (2002) identified three interlinked psychological dimensions of connection which parallel the domains of knowing traditionally identified in philosophy (Lehrer, 2000). Table 5.1 summarises the psychological dimensions of nature connection.

Table 5.1 Psychological dimensions of nature connection

Psychological dimension (*philosophical dimension*)	**Description**
Cognitive (*propositional*)	Connectedness to nature evidenced in "*the extent to which an individual includes nature within [their] cognitive representation of self*" (Schultz, 2002, p.67, his emphasis). Also considered to encompass information with regards to the natural world and the impacts and interactions between it and humanity (as in O'Brien and Murray, 2007).
Affective (*personal*)	Care for nature evidenced in personal feelings of intimacy (Schultz, 2002). Emotional affinity appears to result from spending extended time in nature and is considered to correlate with a number of environmental actions (Pooley and O'Connor, 2000).
Behavioural (*procedural*)	"Commitment to protect nature" (Schultz, 2002, p.68) evidenced in the actions a person takes.

Table compiled by the researcher from Lehrer (2000), O'Brien and Murray (2007) Schultz (2002).

Chapter two asserted that an ontological understanding of connection as the interrelationships between the self, other people and the more-than-human natural world is contained within the cognitive psychological dimension of nature connection. However, this chapter adopts Fox's (1991) typology of ecological identity (Table 5.2) to enable a precise analysis of relationships between the self and the wider world. As stated in chapter two, what differentiates the ontological and cosmological levels of identity from the personal level is concerted reflection on the interrelationships between the self and entities beyond the self. For the remainder of this chapter the term ontology is used in the sense of Fox's (1991) typology described above.

Table 5.2 Fox's (1991) typology of ecological identity

Level of identification	Description
Personal level	Relationship to the natural world based on insight gained from first-hand experience.
Ontological level	Self and wider natural world recognised as all in existence.
Cosmological level	Self and wider natural world considered one "single unfolding process" (Fox, 1991, 4).

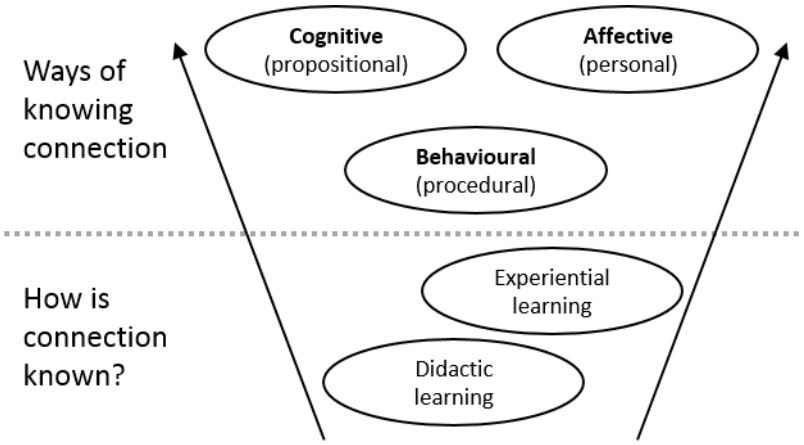
Table compiled by the researcher from Fox (1991).

While Schultz (2002) emphasises the cognitive aspect as the prime component of nature connection, other researchers in environmental psychology emphasise that it is the affective component engendered by first-hand experience of nature which inspires concerted action towards addressing environmental and broader sustainability issues (Kals et al., 1999; Pooley and O'Connor, 2000; Cheng and Monroe, 2012). Similarly, researchers in environmental education (Chawla and Cushing, 2007), ecopsychology (Roszak et al., 1995) and philosophy (Gould, 2007) also emphasise the importance of developing an emotional connection to the natural world. The contrast between these researchers' emphasis on the affective dimension and Schultz's (2002) emphasis on the cognitive dimension highlights the difficulties in assessing an individual's nature connection based upon their willingness or ability to take action on sustainability issues (behavioural dimension).

Chapter two illustrated that these epistemological qualities of connection are arrived at through learning (Figure 5.2). Both the psychological and educational literatures are replete with different theories of learning (Fry et al., 2009; Knowles, Holton and Swanson, 2011; Gray and MacBlain, 2012). This thesis broadly distinguished

between didactic and experiential learning (Beard, 2010). Experiential learning occurs through first-hand engagement with what is being known (Kolb, 1984; Kolb et al., 2001). In contrast, didactic learning occurs through second-hand engagement, such as receiving academic instruction (Stavenga de Jong et al., 2006). First-hand experience has been associated with the affective dimension of connection (Pooley and O'Connor, 2000) and proficiency at completing actions (behavioural dimension, Stavenga de Jong et al., 2006). In contrast, it was identified that didactic learning, or what Freire (2000) has termed the banking approach, was well-disposed to engender cognitive knowing (Stavenga de Jong et al., 2006).

Figure 5.2 The epistemology of connection and its relationship to learning



Key: Schultz's (2002) psychological dimensions of connection are denoted in **bold**; the domains of knowing identified in philosophy (Lehrer, 2000) are denoted in (brackets).

Figure drawn by the researcher, encompassing Schultz's (2002) psychological dimensions of nature connection, Lehrer's (2000) philosophical dimensions of knowing and Kolb's (1984) experiential learning theory.

Nevertheless these ways of learning are by no means limited to a specific dimension of connection; Beard (2010) identifies that while "experiential learning tends to be more active than passive" (p.20) it still reaches across all the dimensions of connection. As Kolb (1984) argued, experiential learning encompasses both physical acts and deep reflection. It is the passivity of didactic learning in contrast to the activity of experiential learning that sets these ways of learning apart. As illustrated in the previous paragraph, learning that engenders connection across the domains of knowing appears much more successful in translating learning and the experiences that constitute it into action on sustainability issues.

This chapter proceeds as follows: The next section (5.2) provides an introduction to some of the ways in which connection to nature can be measured. Using Schultz's (2001) inclusion with nature in self (INS) scale and the researcher's actions matrix, this section provides an overview of the sample and the methodological context for the chapter.

Section 5.3 examines the different ways in which participants describe their connection to nature (research question 2a). It draws on Bateson's (1972) ecology of mind framework to provide a conceptual framework for analysing how participants described the experiences that lead to connection. The section then examines the psychological dimensions of nature connection by analysing how participants' descriptions of connection relate to the different psychological dimensions introduced above, and establishes what bearing they have on how people construct their relationships with the natural world (with reference to Fox's (1991) typology of ecological identification). This section concludes by examining the divergence between participants' descriptions of nature connection and how these relate to their INS and mean actions matrix scores.

Section 5.4 discusses how contemporary urban living and its constituent technologies pose potential barriers to participants connecting with nature (research question 2b). This section also examines how a lack of connection across all the psychological dimensions could help explain the value-action gap (Kollmuss and Agyeman, 2002).

The penultimate section (5.5) identifies what the life history approach has to add to understanding nature connection (research question 2c). This section brings together methodological points raised in previous sections and highlights the ability of the life history method to expose temporal trends in connection.

Ultimately this chapter argues that connection is bound by the everyday experiences of the participants. Different experiences engender different understandings of nature connection which may have different implications for sustainability action.

5.2 Measuring nature connection

This section uses the participants' INS and mean actions matrix scores to provide an illustrative depiction of the sample. This description of the sample provides a background to later sections in this chapter, facilitating the comparison of environmental psychology methodologies of research into nature connection to the life history approach undertaken by this study (research question 2c).

5.2.1 Inclusion with nature in self scale

As outlined in chapter three, during the life history interviews it proved challenging to get participants to discuss their connection to nature through open and follow-up questions. Therefore the use of Schultz's (2001) INS (Figure 5.3) and Mayer and Frantz's (2004) connectedness to nature (CNS) (A2.13) survey instruments were trialled to facilitate participant discussion of nature connection. Schultz's (2001) INS scale was found to have significant weak positive correlations with measurements of biospheric values (r=0.31; p<0.001) and perspective taking (r=0.30; p<0.001) (Schultz, 2001) which are considered associated indicators of nature connection (Brügger et al., 2011; Tam, 2013). In contrast, Mayer and Frantz's (2004) CNS instrument illustrated a stronger significant weak positive correlation with measurements of biospheric values (r=0.45; p<0.01) and a significant moderate positive correlation with perspective taking (r=0.51; p<0.01) (Mayer and Frantz, 2004). Although Mayer and Frantz's (2004) survey instrument evidenced slightly stronger correlations with associated indicators of nature connection, it proved less successful than Schultz's (2001) instrument in eliciting qualitative descriptions of nature connection which were required for this study. Additionally, Brügger et al. (2011) and Tam (2013) debated the effectiveness of Schultz's (2001) single-item INS scale when compared to a number of multi-item survey instruments such as Mayer and Frantz's (2004) CNS scale. Nevertheless, because this study is primarily interested in the qualitative descriptions that follow on from the completion of the survey instrument, these concerns fall beyond the remit of this chapter. The INS scores provide a useful heuristic that may shed light on the qualitative nuances of nature connection. Throughout this chapter extracts from each participant

are followed with their INS scores in parentheses to enable the reader to compare and contrast the extract to the score.

Figure 5.3 Schultz's (2001) inclusion with nature in self survey instrument (taken from Schultz, 2002, p.72)

The INS scale is scored from 1 to 7, with 1 representing separation of the self from nature and 7 representing complete interconnection with nature.

Figure redrawn from: W.P. Schultz, 'Inclusion of Nature in Self (INS) Scale' in P. Schmuck and W.P. Schultz (eds.), *Psychology of sustainable development* (New York: Springer Sceince+Buisness Media New York, 2002, p.72).

5.2.2 Results

Table 5.3 provides the participants' INS and mean actions matrix scores. The possible range of the mean actions matrix scores are between zero and four and provide an indication of the level of sustainability action undertaken by participants. The boxplots (Figure 5.4, Figure 5.5) illustrate that the sample is characterised by people who score themselves highly on both the INS instrument and the actions matrix. With regards to the INS scale, although the sample is positivity skewed it still represents a variety of perspectives across the entire scale (Figure 5.3).The boxplot of the mean actions matrix scores illustrates that the vast majority of participants scored highly (Figure 5.5), as only two participants scored means of less than 2.00 (Table 5.3). These gross trends may

illustrate that the sample is characterised by people who considered themselves very connected to nature and active on sustainability issues, which fulfilled the aim of the sampling strategy outlined in chapter three.

Research in both environmental psychology (Schultz, 2001) and ecopsychology (Roszak et al., 1995) asserts that those who include nature within their self-concept are more likely to take action to address environmental sustainability. To examine the relationship between connection and action in this study, the INS scores of each participant were plotted against their mean actions matrix scores (Figure 5.6, p.152).

It can be observed from Figure 5.6 that there are no clear trends between the participants' INS and mean actions matrix scores. Nevertheless if self reporting is considered to be accurate (see chapter three), then the sample can be considered to represent a group of people both active in sustainability issues that consider themselves to be somewhat connected to nature.

Figure 5.4 Boxplot of participants' inclusion of nature in self scores (n=31, mean=5.3, standard deviation=1.5)

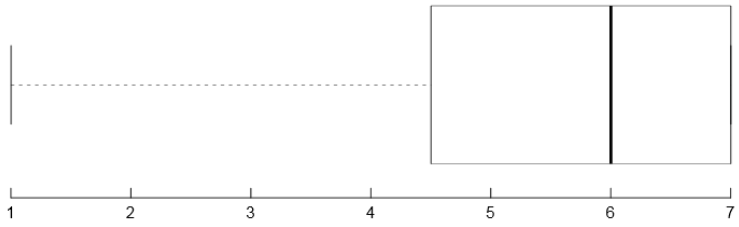
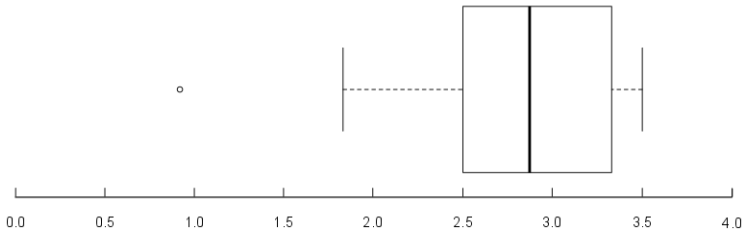


Figure 5.5 Boxplot of participants' mean actions matrix scores (n=30, mean=2.82, standard deviation=0.58)



Key: ○ Identifies outlier Patrick who scored 0.92 for the mean actions matrix

Table 5.3 Participants inclusion with nature in self and mean actions matrix scores

Name	Inclusion with nature in self score	Mean actions matrix score
Stacey[1]	1	2.08
Sally	3	2.42
Andrew	3	3.00
Freya	3	3.25
Wanda	4	2.42
Cara	4	2.42
Chloe	4	2.67
Harriet	4	2.75
Harry	5	2.33
Sophie	5	2.50
Ingrid	5	2.58
Alice	5	2.67
Rosie	5	3.00
Mabel	5	3.25
Rufus	5	3.42
Stella	6	1.83
Isla	6	2.58
Anna	6	3.42
Adam	6	3.50
Robert	6	3.50
Jim	6	3.50
Patrick[1]	7	0.92
Dawn	7	2.67
Gethin	7	2.75
Iona	7	3.00
Elspeth	7	3.08
Jean	7	3.08
Rory	7	3.33
Thomas	7	3.33
Matilda	7	3.33
Mark[2]	7	-

Notes: Morven and Olivia were excluded from the table as they did not provide inclusion with nature in self scores; [1] Stacey and Patrick were recruited to provide alternative perspectives, see chapter three; [2] Mark declined to complete the actions matrix.

Figure 5.6 Scatterplot of participants' inclusion with nature in self score plotted against their mean actions matrix score

Key: ● data points for participants recruited from environmental, education and sustainability sectors; **X** data points for Stacey (1, 2.08) and Patrick (7, 0.23) who were recruited to provide alternative perspectives.

Notes: Morven and Olivia were excluded from the graph as they did not provide inclusion with nature in self scores; Mark was excluded from the graph as he did not wish to complete the actions matrix; data used to plot this graph can be found in Table 5.3.

5.3 Describing nature connection

This section examines the different ways in which participants described their connection to nature (research question 2a). As previously stated, Schultz (2002) asserted that nature connection has three interlinked psychological dimensions, although he emphasised the cognitive aspect whereby a person includes nature in their conception of self. Fox (1991) identified a typology of ecological identification, describing qualitatively different aspects of identification with nature that encompassed personal, ontological and cosmological levels. Fox (1991) argued in line with other theorists in deep ecology (Næss, 1989; Keller, 2008) that ontological and cosmological identification with nature had a greater propensity to result in concerted action on

environmental and broader sustainability issues. In contrast, E.A. Bragg (1996) elucidated criticisms of the aforementioned perspectives from ecofeminism. Additionally, more recent research in environmental psychology (Cheng and Monroe, 2012) has emphasised the interlinkages of the psychological dimensions and illustrated how the affective dimension is able to conceptualise both engendering interest through experience and concerted action. This section aims to elucidate some of these complexities. Firstly it uses two participants' narratives to identify the quality of experience that appears to lead to connection. Then the section examines what psychological dimensions of connection can be ascertained from the participants' descriptions and how these may relate to their ecological identities. Finally the section examines how participants' ecological identities, determined from their qualitative descriptions, relate to their INS and mean actions matrix scores. This section concludes establishing that when people describe experiences that stretch across the epistemology of connection, they appear more likely to articulate transpersonal interrelationships with the more-than-human natural world and act on these relationships.

5.3.1 Reflection as a source of nature connection

The previous chapter established that certain life experiences had the propensity to engender connection to the natural world. This raises questions about the particular characteristics or features of an experience that may prompt connection. This section begins by employing Bateson's (1972) model of the ecology of the mind (outlined in chapter two) to understand where experiences happen with relation to Bateson's (1972) organism-environment continuum. The two participants' experiences presented here illustrate the variety of experiences which may initiate or cultivate connection, presenting the diverse activities and places through which connection might arise. In the first, Rory shares his experiences of the weather. In the second, Elspeth connects her practice of meditation to her overall worldview:

> "One of the big things for me is the weather, it makes me very conscious of the place humans occupy in the world and that we cannot dominate nature. When you are out

> on a boat in a force twelve storm, in survival situations, you realise you cannot control nature… Understanding this makes you aware of your place in the world" (Rory, 7).
>
> "In my adult life I have spent a lot of time trying to understand why I do what I do and what my motivations are… I have come to realise that I am completely part of the world… Until I started my current job I did daily meditation on my bus journeys to and from work and that helped me feel grounded in where I am in the world and how I understand myself" (Elspeth, 7).

Although both Rory and Elspeth's extracts reveal they have similar understandings of their connection to nature, they place emphasis on experiences which have arguably different locations with regards to Bateson's (1972) organism-environment continuum. Rory outlined how his experiences of extreme weather events have enabled him to come to an understanding that one cannot control nature, allowing him to develop a particular understanding of his place in the world. The experience of extreme weather events occurs at the interface between Rory (the organism) and his environment. Similarly, in chapter four Thomas discussed observing birds during his travels in Australasia and recalled how their ubiquity led him to the same insight as Rory. In both of these experiences, connection originates in the sensation and knowledge of phenomena that exists beyond the self (or organism, in Bateson's model). Importantly, connection occurs when the sensory experiences of these phenomena engenders a new and meaningful awareness on the part of the participants. In contrast, Elspeth described how her regular meditation affirmed her understanding of her interconnected relationship with the natural world. Elspeth described a deeply internal, reflective process that appeared to originate within herself. Despite the different origins of the experiences which are ascribed to the understanding of connection, both Rory and Elspeth emphasised the importance of intentional reflection in coming to this understanding. Figure 5.7 offers a schematic representation of Rory and Elspeth's experiences to enable a visual comparison.

Therefore reflection is required for the participants to arrive at this perspective, indicating a pre-existing conception of the self as being separate or distinct from the natural world. This notion chimes with theorisation in both deep ecology (Næss, 1989) and ecopsychology (Roszak et al., 1995) that asserts that the prevailing trend in the

Western world is for people to consider themselves as being separate from and independent of nature. Furthermore, if one's actions are rooted in their articulation of their sense of self, then it justifies research that attempts to ascertain what kinds of experiences invoked meaningful changes in knowledge and action. Hence Bateson's (1972) organism-environment continuum provides another useful heuristic to understand both SLEs and nature connection.

Figure 5.7 Comparison of the experiences used to explain connection to the more-than-human natural world

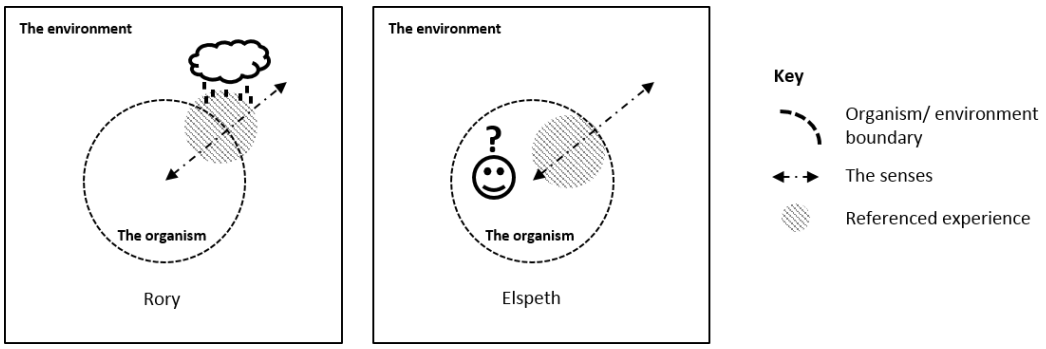


Figure drawn by the researcher, with participants' experiences imposed on top of Bateson's (1972) ecology of mind (adapted from Ingold, 2000, p.18).

5.3.2 Psychological dimensions of nature connection

Schultz (2002) considers nature connection to encompass cognitive, affective and behavioural psychological dimensions, though his own INS scale (Schultz, 2001) employed in this study has been identified as a unidimensional instrument that is only capable of evaluating the cognitive domain (Tam, 2013). An examination of the qualitative descriptions of nature connection can establish if connection across all the psychological dimensions is evidenced, uncovering nuances not captured by the numerical scale. Additionally, examining the qualitative descriptions allows for an understanding of how the different dimensions of connection may have bearing on sustainability action. Three participants' statements on nature connection are discussed below in order to assess the qualitative nuances of connection which were not captured by Schultz's (2001) survey instrument. Sally described her relationship with nature as follows:

> "I am very much aware of nature, its importance and impact on my life but I do not spend huge amounts of time in nature" (Sally, 3).

Sally said she values nature and is aware of its impact on her; this could indicate that she has some cognitive understanding of her connection to nature. However, Sally does not appear to describe an affective dimension to her connection with nature; this may bear some relationship to her statement that she does not spend much time in what she considers to be nature. Cheng and Monroe (2012) identify that the affective component of nature connection is engendered by spending extended time in natural environments. Additionally, it appears that Sally has a narrow conception of nature which is mostly separate from herself, as she conceives of it primarily as somewhere a person goes to spend time. The discussion points outlined above may provide an explanation for why Sally self-scores her INS scale relatively low. In contrast, Dawn's interview extract below alludes to an experiential understanding of connection, influenced by the extended period of time she spends immersed in nature:

> "Nature connection is living in a place and getting to know the landscape intimately. You see daily changes when you are going the same route each day. You see the changes when the leaves fall off the trees, the changing seasons" (Dawn, 7).

Dawn conveyed a sense of active involvement with the natural world through her description of walking her dog and awareness of seasonal changes. Dawn's statement encompasses an experiential component that Sally's was lacking. Unsurprisingly, Dawn scored herself highly with regards to the INS scale.

Like Dawn, Mark, a retired lawyer, also self-scores seven on the INS scale. However, his description is qualitatively different to Dawn's, in that it explicitly encompasses all the psychological domains of connection. Mark stated:

> "I am totally, utterly immersed in nature… I am just there, it is what I am. This afternoon I am making another log store. I have just been collecting and harvesting wildflower seeds and I do this all the time… I am upset because the domestic cats are killing my pheasant chicks so I have taken steps to defend them" (Mark, 7).

Like Dawn, Mark provides an experiential description of his connection to nature that encompasses the actions he takes. However, Mark's description of nature being "what I am", hints at Fox's (1991) cosmological perspective on the interrelationship between

him and the more-than-human natural world. In contrast, applying Fox's (1991) typology to Dawn and Sally's descriptions illustrates that their understanding of nature connection appears to be bounded by their personal, day-to-day experiences of the natural world (or lack thereof). Fox (1991) asserted that a cosmological conception of self has a greater propensity to result in concerted action to protect and conserve the more-than-human natural world. With regards to the actions matrix, both Dawn and Sally scored below average with scores of 2.42 and 2.67 respectively. In contrast, although Mark declined to complete the actions matrix, when his interview transcript and interactions with the researcher were considered, it indicated he likely would have scored highly. Additionally, as noted earlier in contrast to both Sally and Dawn, Mark's description of nature connection spans the psychological dimensions. This may illustrate that a cosmological perspective bears some relation to a holistic consideration of nature connection and concerted action on sustainability issues.

5.3.3 Representations of nature connection

The previous paragraphs have focused on examining qualitative descriptions of nature connection in order to identify the psychological dimensions they reflect and comment on how these relate to the participants' considerations of their relationship with nature. The following paragraphs adopt a different approach, whereby selected participants' descriptions of nature connection are evaluated to ascertain if they bear any relationship to their reported sustainability actions. Some perspectives in environmental psychology (Schultz, 2002), deep ecology (Næss, 1989) and ecopsychology (Roszak et al., 1995) purport that the only way for people to take concerted action on environmental and broader sustainability issues is for them to see themselves as an intimate part of the natural world. However, it should be noted that this assertion has been contested by ecofeminism which asserts that identification with a distinct other is essential to promote the care required for people to act on their connection (Bragg, E.A., 1996; Warren, 2008). Nevertheless, this section aims to analyse and elucidate the relationship between the ecological self and action on sustainability issues. The participants' statements that provide divergent descriptions of nature connection are presented below. Figure 5.8 and Table 5.4 provide diagrammatic representations of the

participants' statements with accompanying INS and mean actions matrix scores to facilitate comparison.

Harry scored 5 on the INS scale and a mean of 2.33 on the actions matrix. He described his relationship to nature thus:

> "I enjoy, value and try to give something back [to nature and] there is a greater degree of overlap [between nature and I] than most people… But it is not my whole life, I can switch it off" (Harry, 5).

Harry values nature, but conceived nature as something separate to himself which he "can switch off". For Harry, nature is an object-place that can be experienced and impacted upon, and that people have varying and differentiated relationships with. Cara scored 4 on the INS scale and a mean of 2.42 on the actions matrix. She described her relationship to nature as:

> "I think the relationship between nature and myself is overlapping but I do not think we are one. Although we are a part of the natural world, I think we are also part of society too. Although these social systems have come from nature, they have become separate from nature. Nature is a big part of me… [But] I have a self outside of nature" (Cara, 4).

Cara described how she believed herself to be a part of two distinct worlds, the social and the natural worlds. Although she acknowledged that social systems have come from nature, she considered them to be separate from it. Cara ascribes a teleology to social systems, whereby social development and social complexity exist in opposition to nature and the natural world. Iona scored 7 on the INS scale and a mean of 3.00 on the actions matrix. Iona described her relationship to nature as:

> "Nature is a big circle and I am a small circle within that. Everything, my existence, values, myself depends on nature… I am just part of an ecosystem. I know humans have done some crazy things so we can wall ourselves away from nature, but we are still part of the ecosystem. We are born, we live, we die, we go back into the system one way or another" (Iona, 7).

With reference to the INS survey instrument (Figure 5.3), Iona described her position as being completely within nature. Iona conceives of her self and nature as concentric circles, where she is entirely subsumed by natural systems. Anna scored 6 on the INS

scale and a mean of 3.42 on the actions matrix, she described her relationship to nature as:

> "I see myself as part of nature, it is fundamental to who I am… I accept that there is a part of the natural world that is totally independent of me… I believe in the resilience of the natural world without humans, it would be fine, even better without humans" (Anna, 6).

While Anna expressed a similar sentiment to Iona there was a subtle difference in that she described herself as being part of nature. The researcher contends that Anna's description is similar to that of Mark's mentioned earlier who asserted that "[nature] is what I am". Whereas Iona expressed an ontological perspective of nature connection that acknowledges importance of the existence of all life, Mark and Anna's inherent cosmological perspective alluded to a single, unfolding reality of which everything is a part.

Figure 5.8 Diagrammatic representations of selected participants' perspectives on nature connection

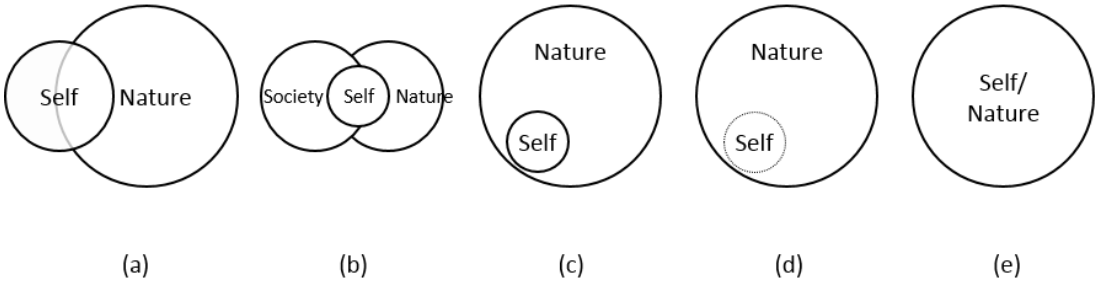


Figure drawn by the researcher, inspired by Schultz's (2002, p.72) depiction of the potential relationships between the self and nature.

Although both Anna and Mark's testimonies were considered in line with Fox's (1991) cosmological perspective on nature, the researcher chose to diagram their descriptions of connection differently. This was because Anna stated that nature would be "better without humans" which could be considered to reinforce the idea that humans are just one small part of a greater whole. In contrast, Mark's description gave no indication as to a difference in scale between himself and nature. Further discussion with the participants would be required to understand these subtle differences revealed in hindsight during the analysis.

With regards to the selected data presented above it can be observed that participants such as Harry and Cara, who either envisage a self that exists outside of nature or a part of society that exists beyond nature, have below-average mean actions matrix scores. Unsurprisingly, they do not score themselves as being highly connected with nature. In contrast, in the cases of Iona, Anna and Mark, where the self is presented as part of or the same as nature, above average mean actions matrix scores were reported. These participants also scored themselves as being more highly connected with nature. While in the previous section these statements were differentiated based upon their classification as either being at ontological or cosmological levels of identity with nature, this difference did not appear to strongly differentiate between how they envisaged their connection to nature or their sustainability actions. Nevertheless, where the participant considered his or her self as being beyond nature, less action on sustainability issues was recorded, suggesting that in order for people to take concerted action they should see themselves as being included within nature.

Table 5.4 Selected participants' diagrammatic representations of nature connection with inclusion with nature in self and mean actions matrix scores

Diagram	Participant	Inclusion with nature in self score	Mean actions matrix score
(a)	Harry	5	2.33
(b)	Cara	4	2.42
(c)	Iona	7	3.00
(d)	Anna	6	3.42
(e)	Mark	7	-

Note: Mark declined to complete the actions matrix, but as was previously noted (5.3.2) his interview transcript and interactions with the researcher evidenced a comparatively high level of sustainability actions.

5.3.4 Conclusion

This section sought to understand how participants describe their connection to nature (research question 2a), developing an understanding of the quality of experiences that lead to nature connection and comparing participants' understanding nature connection to trends in the academic literature.

The application of Bateson's (1972) organism-environment continuum illustrated that while there can be different origins of the experiences that prompt

nature connection, the common act of reflection facilitates the development of a conception of the self that understands the self as being a part of nature.

When nature connection was described holistically across all of its psychological domains, the descriptions were similar to Fox's (1991) ontological and cosmological ecological identities. These descriptions appeared to focus on the position of the self with regards to nature in much the same way as Schultz (2002) definition of the cognitive aspect of nature connection; however they also incorporated affective and behavioural components. Nevertheless, this is not to say that the cognitive dimension should take centre stage as argued by Schultz (2002), but that the cognitive dimension contains an expression of the relationship between the self and the natural world (as termed the ontology of connection in chapter two). This relationship appears to require both affective and behavioural dimensions in order to be realised in concerted action. However, this begs the question of whether sustainability action is required for the development of nature connection. This is addressed in the following section. Additionally, the participants whose descriptions of nature connection aligned with Fox's (1991) ontological and cosmological perspectives appeared to undertake greater levels of sustainability action.

Finally, the discussion in this section built a rich picture of how qualitative descriptions of nature connection can contain subtle differences that cannot be captured through quantitative measures. This insight illustrates a strength of employing the life history method, which is addressed in the penultimate section of this chapter. The next section examines the barriers participants identified to them connecting with nature.

5.4 Barriers to nature connection

Over two-thirds of this study's participants did not self-score 7 on the INS scale and identified a number of reasons why they did not consider themselves to be fully connected with nature. This section outlines the barriers participants identified to nature connection (research question 2b). Additionally, this section examines if it is possible to describe oneself as connected to nature if one does not undertake

sustainability action; this query parallels the longstanding conundrum of the value-action gap (Kollmuss and Agyeman, 2002).

Participants predominately identified the interrelated reasons of modern urban living and technology as preventing them fully connecting with nature. Rosie and Jim are a married couple living in the east of Scotland who work for a university estates department. In the quotes below obtained during separate interviews they described why they did not consider themselves fully connected with nature:

> "Nature is a big part of me but I do not see myself as being a complete hippy… I still need a reasonable amount of creature comforts… I would probably be happy living in a yurt in the middle of nowhere if you did not have to earn money [to live]" (Rosie, 5).

> "I would say I am close to nature but I am not completely at one with it… I could not live in a yurt in the forest, which I would consider at one with nature… I enjoy a certain level of comfort but I also want to feel as close to nature as possible" (Jim, 6).

Like Rosie and Jim, a number of other participants who did not rate their INS at 7 believed that to be completely interconnected with nature you would have to "live in a hut in the forest" (Adam, 6) or "live completely in the wilderness" (Sophie, 5). These participants interpreted living in an urban environment as a barrier to achieving complete interconnectedness with nature; this is a point that is explored throughout this section. Rosie and Jim identified their desire for a level of comfort that they considered not to be possible if they lived fully interconnected with nature. As Shove (2003b) illustrated, many modern comforts that are taken for granted in contemporary society are energy and resource intensive. There is a substantial and pressing conflict between the desire to be connected to nature and the perception that modern lifestyles preclude such connection; this is explored below.

Rosie goes on to identify that "some of the fundamental aspects of society are damaging to nature". Rosie's sentiments were expressed and extended by Rufus, a retired national politician:

> "To be entirely integrated with nature would be very difficult in modern industrial society. I think for most of the human race, as half of us now live in cities, [being interconnected with nature] is beyond where we could get. But if we designed our houses and cities better [we could be more interconnected with nature]" (Rufus, 5).

Rufus asserted that contemporary urban living is detrimental to nature. Given that much research has shown that cities are vast sinks of resources and producers of substantial amounts of waste, Rufus' position is difficult to dispute (Ascione, Bargigli, Campanella and Ulgiati, 2011; Satterthwaite, 2011). However, as Rufus identified, there is the potential for reimagining urban environments in order to limit their impact on the natural world (Orr, 2002). Nevertheless, Rufus emphasised that the prevailing conditions in urban areas are not compatible with his conception of nature connection. To a certain extent, the actions which shape contemporary urban living are influenced by the technologies that comprise it. The extracts below elucidate the role technology plays in modern urban living, examining how it may prove a barrier to connection with nature.

In his seminal treatise on nature connection, Schultz (2002) argued that technology separates people from nature, limiting their ability to make a meaningful connection with it. Schultz (2002) subsumed the infrastructure that supports modern life, such as transport and buildings, into his consideration of technology. A number of researchers argue that specific applications of technology can increase knowledge and appreciation of nature, hence furthering connection (Louv, 2011; Holloway and Mahan, 2012). However, these applications were not discussed by this study's participants and hence are beyond the remit of this chapter. In the extracts below Wanda, a postgraduate student, and Freya, an academic, discussed what they considered to be the impact of technology on nature connection:

> "In our society we are focused on technology and we divide ourselves from the environment. In Scotland I have to walk but back home in [North America] you drive everywhere and do not have to go outside" (Wanda, 4).

> "I think [nature connection] is about spending time in a context that is not mediated by technology and conveyed through a computer screen or some virtual reality… At the moment I feel my life is mediated by far too much technology and also tarmac and stone, things that might have been natural at one time but have been hewn into manmade things" (Freya, 3).

These participants identified technology and the infrastructure that encompasses it as separating them from nature. Wanda identified that the need to walk in Scotland brings her into closer contact with nature than she would experience in the US. Interestingly,

Freya identified that the materials that compose the urban landscape were constituted from the natural environment. Nevertheless, Freya lamented the fact that much of her life is "mediated by technology". Hence these participants' statements appear to support Schultz's (2002) assertion that technology is inimical to nature connection. It appears that much of the material and institutional structures that appear to prevent these participants from realising connection are the selfsame structures that constrain sustainability action; these are outlined towards the end of this section and discussed in greater depth in chapter six.

Taken together, the previous quotations outlined in this section illustrate that many of the participants who scored less than 7 on the INS scale considered complete interconnection with nature to be living without much technology in a predominantly rural or wilderness environment. Furthermore, these participants did not appear to consider their lifestyles and their level of sustainability action as compatible with being completely connected to nature. Environmental psychology broadly posits that the more connected a person is to nature, the greater their propensity to undertake protecting and conserving behaviours in the interests of the environment (Brügger et al., 2011; Tam, 2013). Interestingly it was the participants who scored themselves 6 on the INS scale that actually scored the highest means on the actions matrix (Table 5.3). Additionally, the two lowest scores for the actions matrix were for Stella (1.83) and Patrick (0.92) who scored 6 and 7 on the INS scale respectively. Although Patrick was recruited to provide an alternative perspective as someone who did not identify with sustainability issues, Stella was recruited for her apparent interest and action on these issues. There are a number of possible explanations for the discrepancies between actions matrix and INS scale scores. One reason for this mismatch may be the difference between intention and action. Whereas environmental psychologists describe nature connection as predicting intention to act (Brügger et al., 2011; Tam, 2013), the life history method adopted by this study was designed to build a rapport with the participants in order to encourage honesty (Bryman, 2008) and then enquired how they had acted during the last year. This subtle difference may provide a methodological reason for the discrepancy described above.

Additionally, although Schultz (2002) asserts that there are cognitive, affective and behavioural components to nature connection, his INS scale (Schultz, 2001) was identified by Tam (2013) to be unidimensional, only quantifying the cognitive component of connection. However, as has been illustrated by both Pooley and O'Connor (2000) and Cheng and Monroe (2012), the affective dimension is instrumental in engendering protecting and conserving actions such as those that are recorded in the actions matrix.

This apparent disconnection between participants stating they recognise their connection to nature and the actions they are either willing or able to undertake could be explained with reference to the value-action gap (Blake, 1999; Kollmuss and Agyeman, 2002) which is often discussed in terms of sustainability attitudes and values, and the inability to translate such attitudes into action (Flynn, Bellaby and Ricci, 2009). Perhaps the mismatch between values and action comes about when a person does not understand themselves as being holistically connected to nature across all the psychological dimensions. So as illustrated by the previous paragraphs, a person may cognitively recognise the facts of interconnection, but if they do not feel it, act on it or experience it then they are not fully connected and fail to take concerted action. Future research could attempt to build a stronger picture across the domains of knowing that constitute a holistic sense of connection by additionally employing multidimensional survey instruments such as Clayton's (2003) environmental identity and Nisbet, Zelenski and Murphy's (2009) nature relatedness scales. Although a lack of engagement at affective, behavioural and/ or experiential levels may stifle connection. As Blake (1999) posited, the physical and institutional structures of the context in which people live can also prevent them acting on their values, and hence connection. Chapter six discusses how these institutions and structures bound connection and action.

In summary, this section has illustrated that a number of participants consider many of the physical and institutional aspects of mainstream life in Western society to pose barriers to connection with nature. Additionally, it should be acknowledged that connection that is limited to the cognitive dimension also poses a barrier to holistic connection and hence action.

5.5 Investigating nature connection

This section examines what the life history method adopted by this study has to offer to the understanding of nature connection (research question 2c). The previous sections in this chapter have illustrated that the life history method is able to capture diverse descriptions of nature connection that cannot be derived from the traditional survey instrument approaches adopted in environmental psychology. The previous section identified that the extended interview format helps to build a rapport between the researcher and participant; this may work to ameliorate some of the self-reporting bias which concerns environmental psychologists when describing the reliability of their findings (Steg and Vlek, 2009). The previous section also identified that the life history interview allowed for the exploration of nature connection across its psychological dimensions, building a fuller and more nuanced picture when it comes to understanding how connection relates to sustainability action.

Additionally, the interview approach allowed for the temporal dynamics of nature connection to be more easily explored. Some participants noted that their connection to nature varies at different times of the day. For example, Robert stated:

> "How connected or disconnected am I? It depends what moment of the day you get me… Sometimes I feel attuned to the natural world, but other times I feel quite disconnected" (Robert, 6).

Other participants noted that their connection to nature has varied at different times during their life course, speculating on the reasons for this. Dawn commented:

> "[Nature connection varies] at different times in your life and probably depends on where you live. At one point I was living in London and [my connection to nature] might have been completely different. Or perhaps at different phases of your life, [so I was more connected] when I was younger" (Dawn, 7).

While Dawn related her nature connection to where she was living, Stella (6) related it to her current occupation. Additionally, Rory (7) noted that increasing media coverage in recent years has strengthened both his connection to nature and those in other parts of the world experiencing what he perceives to be the impacts of climate change. It

appears that incorporating a discussion on nature connection into the life history interview allowed for the temporal elements of connection to be elucidated.

The previous section identified that the incorporation of multidimensional measures of nature connection into the life history interview to accompany its current use of Schultz's (2001) INS scale would strengthen the ability of the method to identify connection across psychological dimensions, building a holistic understanding of connection. In addition, this combination of methods would serve to bridge the gap between these disciplines, drawing on the strengths of both fields to provide further insight into how people experience and act on connection. In summary, the life history interview approach to understanding nature connection allows for greater understanding of connection across psychological dimensions, improved reliability of findings, elucidation of its relationship to action and the identification of temporal trends.

5.6 Conclusion

This chapter sought to understand how nature connection is experienced through evaluating how participants described connection and the barriers to it. Research question 2a sought to understand how participants described their connection to nature. Participants' descriptions of nature connection confirmed that it is at its strongest when experienced holistically across the psychological dimensions identified by Schultz (2002). Examination of selected participants' testimonies revealed that while as illustrated in chapter four, the experiences that prompt connection are varied, the process of reflection is common to these experiences. Additionally, these selected descriptions illustrated parallels between Fox's (1991) ontological and cosmological ecological identities and higher levels of sustainability action. Future research could seek to clarify and formally establish these relationships.

Research question 2b sought to understand the barriers participants perceived to them connecting with nature. Participants perceived barriers to be tied up in the structures, institutions and technologies that dominate their predominantly urban lives. Additionally, it was proposed that the often-cited value-action gap may in certain

circumstances be conceptualised through considering a lack of holistic connection across one or more of its psychological dimensions.

Research question 2c sought to understand what the life history method could contribute to the understanding of nature connection. The evidence presented throughout the chapter revealed how the life history interviews provided an opportunity to elucidate the complexities of nature connection, which could not be captured by a quantitative survey instrument. Crucially, the life history method allowed for the exposition of temporal variance in participants' descriptions of nature connection, citing similar reasons to the barriers previously identified.

Finally it appears that the participants' experience of nature connection is bound by their everyday lives. Participation in society requires actions most participants consider partly supportive but mostly inimical to sustainability and hence connection to the natural world. Therefore, a fuller understanding of what bounds action on sustainability issues would have positive impacts for engendering and sustaining connection to the natural world. With this in mind, chapter six moves to build an understanding of the factors that bound action.

Chapter six

Results and discussion III

Action

6.1 Introduction

Chapter five established the importance of connection for engendering and maintaining sustainability action; this chapter seeks to understand what can prevent connection from leading to action, elucidating what bounds action. In order to understand what can prevent connection from leading to action, the interdisciplinary understanding of the relationship between connection and action discussed in chapter two is summarised below.

Nature writings such as the work of Thoreau (2007 [1854]) and Leopold (1970 [1949]) provide some of the earliest modern insight to a link between connection and action in the Western world. It was partly from the inspiration of nature writers that Tanner formulated his hypotheses that people who spend time in natural environments are more environmentally active (Tanner, 1998). As the field of research into significant life experience (SLE) grew in the 1980s and 1990s, parallel enquiries in environmental psychology sought to apply social and cognitive psychology principles to environmental behaviour (Scull, 2008). Chapter two compared and contrasted a number of theories relating experience and connection, illustrating that although they claim to be indicative of particular sustainability actions, many were unable to capture the wider context which bounds action. Alternatively, sociological theories of practice assert that practices emerge, are sustained and cease at the confluence of the individual and social totality, allotting primacy to neither (Giddens, 1979, 1984; Reckwitz, 2002; Shove et al., 2012). These sociological theories assert that action is determined by more than just psychological variables of knowing.

So far this thesis has examined how connection is engendered and what it might constitute. Chapter two proposed an epistemology of connection that encompasses ways of knowing that go beyond the cognitive domain of traditional psychology and

academic learning to encompass behavioural and affective ways of knowing the world. Knowing exists beyond the psychological domain of the mind, at the interface of the body and mind with the wider physical world (Bateson, 1972). An ontological conception of connection as the interconnectedness of the human and more-than-human natural world (Næss, 1989) is contained within the cognitive aspect of the epistemology of connection. While connected ways of knowing appear to influence action, so do other elements as illustrated by sociological theories of practice (Shove et al., 2012). In order to understand what can prevent connection from leading to action, it is necessary to understand what other elements play a role in engendering action.

With the above in mind, this chapter begins by examining the elements that can be used to describe and understand sustainability actions. The actions framework developed in chapter two is used to explain and evaluate the actions participants described in their life history interviews (6.2). The actions framework illustrates that sustainability actions happen at the nexus of the elements and structures of action. Additionally, by considering sustainability action in this holistic sense, a better understanding of what bounds action can be attained.

This understanding of sustainability actions is taken forward in the context of the life history study to examine how and why these actions may change across the life course (6.3). The home environment is shown to entrench habits which can be perturbed at transition points later in the life course. Additionally, temporal variations in the elements and structures of action are shown to reconfigure the sustainability actions performed by participants.

Throughout the chapter, the relationship between connection and action is elucidated, with the penultimate section compiling and summarising this discussion (6.4). Connection formulated through extended time and involvement appears to result in concerted action on sustainability issues provided other needs and expectations can be negotiated.

The final section (6.5) in this chapter brings together the results and discussion presented throughout to illustrate that competing needs and expectations, in addition to the variability and/ or adoption of elements and structures, can prevent connection

from leading to action on sustainability issues. Figure 6.1 outlines the research objective and questions that frame this chapter.

Figure 6.1 Research objective and questions addressed by chapter six

Research objective three – To understand what prevents connection from leading to action
3a) What elements can be used to describe and understand sustainability actions?
3b) How and why might sustainability actions change across the life course?
3c) How can the relationship between connection and sustainability action be understood?

6.2 Understanding action

In order to improve the understanding of what can prevent connection from leading to action, it is useful to understand the elements which come together to enable action (research question 3a). Chapter two developed a framework to understand sustainability actions which is depicted in Figure 2.8 and is summarised below.

The framework incorporates three elements into its conceptualisation of action: knowing, time and material. This framework was greatly influenced by sociological theories of practice (Giddens, 1979, 1984; Reckwitz, 2002; Shove et al., 2012). However, while the framework appears to share elements with Shove et al.'s (2012) practice theory, this actions framework cannot be considered a true theory of practice. This is because it was designed with the life history interviews in mind to study the actions of individual participants, and employs a variety of terminology and concepts that Warde (2014) identifies as incompatible with social practice theory. The framework adopts the advantages of practice theory's holistic conceptualisation of action, attempting to decentre the role of knowing, in particular individual choice and agency, which currently dominates psychological theories of behaviour (Warde, 2014).

While both psychological (Schultz, 2002) and social practice (Shove et al., 2012) theories break knowing into different elements, the actions framework proposed in chapter two depicts knowing as an integrated element. This is because although connected ways of knowing are not essential for sustainability action, research illustrates that they appear more likely to result in sustained, long-term action (Millar and Millar, 1996; Pooley and O'Connor, 2000; Cheng and Monroe, 2012). Additionally,

by differentiating between knowing, material and time equally, the actions framework illustrates that they all have an integral role to play in engendering action.

The actions framework considers the knowing element to comprise of the three dimensions of knowing outlined in chapter two which also encompasses the epistemology of connection previously discussed. These dimensions of knowing are further discussed in the next section. In this thesis, materials and time are broadly considered in line with Shove et al.'s (2012) conceptualisation. This study's actions framework considers materials to be 'tangible entities' required to perform actions, which includes the body of the person performing the action. Time is considered in the same way as Shove et al. (2012) treats it, in that actions compete for time, are fitted into schedules and create time. Structures are configurations of knowing, materials and time which are held by both persons and institutions and can exist at a variety of spatial scales from local to global. The consideration of structure depicted in this actions framework is akin to Giddens' (1979) description of both structures and systems.

This section applies the actions framework to illustrate how these elements can be used to describe and understand the sustainability actions described by participants (research question 3a). The elements of the framework are explored using material from the life history interviews. Although this section focuses on each element in turn references are made to other elements throughout, as action is created at the nexus of these elements. The following section describes and discusses the ways these aforementioned elements and structures come together in everyday life to both support and hinder sustainability action. Where appropriate, attention is drawn to the relationship between connection and action (research question 3c) in preparation for this to be addressed towards the end of this chapter. Finally, these results and discussions are summarised towards addressing research question 3a, illustrating that the actions framework provides one way of holistically conceptualising action drawing on the strengths of both psychological and sociological theories of action. This understanding is taken forward to examine life course and temporal variations in the next section of the chapter.

6.2.1 Knowing

As described in chapter two, different dimensions of knowing play a crucial role in how people understand and act in the world. Learning is the process through which knowing is created, sustained and transformed. This does not negate the important roles that materials, time and structure play in engendering action. However the life histories collected for this research provide rich insights into the knowing participants believe is integral to their sustainability actions.

Chapter two defined the epistemology of connection to be thought and action on sustainability that spans across the three dimensions of knowing. Table 6.1 summarises the dimensions of knowing which were outlined in chapter two. As outlined in chapter two, although only the behavioural dimension of knowing is required to perform an action, researchers in nature connection have argued for the importance of both cognitive (Schultz, 2002) and affective (Pooley and O'Connor, 2000; Cheng and Monroe, 2012) dimensions of knowing for engendering and sustaining action on environmental issues.

Table 6.1 Dimensions of knowing summarised from chapter two

Psychological dimension (*philosophical domain*)	**Description**
Cognitive (*propositional*)	Propositional knowledge is concerned with facts and truth (Reason, 1998; Lehrer, 2000). O'Brien and Murray (2007) also use the psychological term cognitive to describe information on the state of the world and understanding its relationship to humanity. Additionally, this dimension also includes the concept of the cognitive representation of the self (Martin et al., 2010), and the extent to which other people (Daloz et al., 1996) and the more-than-human natural world are included in this (Næss, 1985).
Affective (*personal*)	Knowing that comes about through intimate involvement with an entity or phenomena that evades objective description. Reason (1998) described it as knowing that was difficult to ascribe words to.
Behavioural (*procedural*)	'Knowledge-how' (Fantl, 2014), knowledge of how to do something, such as a skill or competence (Reason, 1998; Lehrer, 2000).

Table compiled by the researcher from Daloz et al. (1996), Fantl (2014), Lehrer (2000), Martin et al. (2010), Næss (1985) O'Brien and Murray (2007) and Reason (1998).

This section proceeds as follows: The roles of education, teaching and learning in influencing the knowing and action of participants are discussed. How participants also seek to influence other people's action on sustainability is also outlined. Then the role knowing plays in how participants reason and make decisions is examined.

Psychological and sociological theories are illustrated to both have strengths in understanding the knowing that underscores action. Finally this section examines the complex and varied role played by affective knowing in action, identifying examples which outline how despair, belonging and belief influenced the actions of participants.

Education, teaching and learning

Chapter four illustrated that education plays a variety of roles in influencing how people come to know and act in the world. The first examples in this section are concerned with how education influences the dimensions of knowing, which in turn impact on sustainability actions. Subsequent examples in this section are concerned with how participants seek to teach and influence the actions of others, highlighting the role learning plays in these relationships. The complex and contested nature of the terms knowing, learning, teaching and education were detailed in chapter two, with the following definitions were adopted:

Knowing is considered to be the ideas, feelings and skills held by a person. These ideas, feelings and skills can be broadly classified into the philosophical and psychological dimensions of learning outlined in Table 6.1, although it should also be recognised that these dimensions do not exist in isolation of each other (Bloom et al., 1964 cited in Nicol, 2014). Learning is the process by which these ideas, feelings and skills are created and changed (Itin, 1999; Lehrer, 2000). Teaching is a process by which learning and knowing are intentionally influenced (Winch and Gingell, 2008). Knowing, learning and teaching are not unique to education but they are integral to it. Education is an intentional process of developing a person to their full potential (Sterling, 2001; Orr, 2004a; Winch and Gingell, 2008; Smith, 2015). Education can take place in a variety of settings both formal and informal, and can involve one or more persons (Itin, 1999; Marsick and Watkins, 2001). However, education should not be confused with schooling, which is concerned with the didactic transfer of information from teacher to learner (Freire, 2000; hooks, 2003; Smith, 2015).

Initial models of environmental behaviour assumed an information-deficit model of behaviour change (Kollmuss and Agyeman, 2002). The assumption was that by providing people with more information on environmental crises this would encourage

greater environmental behaviour. Information on environmental crises is considered part of the cognitive dimension of knowing (O'Brien and Murray, 2007). However, research since the 1990s has illustrated that the information-deficit model of change is insufficient for explaining and influencing environmental behaviour change (Hungerford and Volk, 1990). Nevertheless, the role that formal learning through education systems play in how participants come to know the world is complex (Smith, 2015).

The two extracts below illustrate the varied impact participation in formal education can have. Sophie is in her mid-twenties and went to secondary school in the mid-2000s, she stated:

> "I remember our geography teacher made us watch videos about how in 2012 England was going to be underwater [laughs]. That made me really depressed. I do not think it was the right thing to do" (Sophie).

Sophie asserted that the dystopian representations of the future provided by her geography teacher did little more than cause upset and despair. Indeed Sterling (2001) outlines that education which fails to provide positive, achievable suggestions to how participants can practically act in the face of environmental crises leads to disempowerment and inaction. In these instances, the provision of information as a cognitive way of knowing fails to engender sustainability action. Sophie's experience is not uncommon and indicates the special role teachers play in shaping how their students come to know the problems facing the world. The discussion of the role of despair in sustainability actions is further developed later in this section.

In contrast to Sophie's experience, Rory described the positive influence of education on his sustainability actions. Rory returned to education in his late-thirties to read for a Masters degree in sustainability. When completing the actions matrix, Rory described how within six months of undertaking the degree he was participating in a greater number of sustainability actions:

> "There was a gradual change in my behaviours… But it took place in the six months before and after starting my Masters... Maybe [the Masters] did not directly help with my behaviour, but it opened my eyes to why my behaviour needed to change" (Rory).

Rory was then asked if he felt anyone influenced his actions, he stated:

> "[The Masters' lecturers] were probably the main influence and others in the programme to a lesser extent... Some of the changes I made from reading I had done before starting the course but others definitely since then" (Rory).

Rory described his Masters studies as a "big turning point". This highlights the capacity of education for transformation which was discussed in chapter four. Daloz (2000) outlines the importance of reflective discourse and membership of a mentoring community in engendering life course transformations. Rory's Masters course provided him with the opportunity to engage in reflective discourse on his sustainability actions. In addition, the course provided a mentoring community through which Rory could connect with others to receive support in both his ideas and actions. In this way, the connection to others may support Rory to sustain his commitment to undertaking sustainability actions.

The following quotes describe the role participants consider knowing to play in changing both their own and the actions of other people. The participatory theory of knowledge discussed in chapter two assert that knowing exists in the relationships between people and the wider world (Lincoln et al., 2011). Therefore the interpretation of the extracts provided by these participants serves to elucidate relationships between knowing, action and connection.

Harry spent nearly all of his working life in the public sector as a national park ranger and volunteers' coordinator. He spoke at length about the importance "enthusing other people" had played in his career with the national park:

> "If you want to be conceited you think I am interested in it, therefore it must be important... But you can risk pushing ideas down peoples' throats. On the other hand if you do it right and people have got enquiring minds... We are waking people up to the fact that it is their world and they are going to have to look after it... It was a case of here was an opportunity to enthuse other people about going to the countryside" (Harry).

Harry discussed the importance of designing meaningful experiences to engage people with the natural world. Additionally, several studies into SLEs have illustrated that people concerned with the environment often identify a range of sources of concern including experiences in the outdoors (Tanner, 1980; Chawla, 1999; Sward, 1999). This

parallels the original impetus Tanner (1998) expressed for his research into SLEs. These experiences could be considered important as they potentially provide a stimulus for perspective transformation (Daloz et al., 1996) through intimate contact with the natural world. These experiences may be one way a person can come to an epistemology of connection, and hence take concerted action in the interests of the more-than-human natural world.

Harry's statement suggests that his aim through facilitating outdoor experiences was to provoke critical consciousness, which is the starting point for perspective transformation (Mezirow, 1990). Harry considers "enquiring minds" to be essential for people to have meaningful experiences in the outdoors. Indeed Daloz (2000) identifies reflective discourse as an integral component in transformation. Additionally, the corollary of "enquiring minds" and its impact on experience should be considered. Freire (2000) outlines how passivity stifles critical thought and action, preventing the development of the critical consciousness needed to undergo transformation.

Harry also described the "risk [of] pushing ideas down peoples' throats". The extract below from Mabel, an environmental project worker in her mid-twenties, elaborates on the difficulties faced when trying to influence people to undertake sustainability actions:

> "It is difficult because you do not want to tell people what to do, and I still do not think I have the right way of approaching it. You can make people feel like they just want to do the opposite and rebel against you" (Mabel).

Mabel and Harry's statements illustrated the psychological concept of reactance by which a person resists persuasion when they feel their freedom of choice may be threatened (Martin et al., 2010). The relationship between reactance and sustainability actions is under-researched. However, Murtagh, Gatersleben and Uzzel (2011) examined the role reactance plays in shaping sustainable travel behaviours. The concept of reactance may be the reason why both the deep ecology and ecopsychology perspectives emphasise the importance of a person coming to sustainability thought and action of their own volition (Næss, 1989; Scull, 2008). As discussed in chapter two, learning theory can provide insight into how peoples' thoughts and actions change. The

concept of self-directed learning could offer insight into how a person may develop sustainability knowledge and action on their own initiative. Knowles and colleagues (2011) state that self-teaching and learner autonomy are two independent yet linked components of self-directed learning. Learner autonomy occurs when a person takes responsibility for their own learning. Returning to Harry's earlier quote, Harry emphasised the importance of "enquiring minds" where people who participated in the outdoor experiences he facilitated were willing to get involved with their experience and take responsibility for their own learning.

However, the reasons why self-directed learning may be more effective than teacher-led learning are poorly understood (Gureckis and Markant, 2012). Gureckis and Markant (2012) suggest that learners who engage in self-teaching are better able to identify their own learning requirements and strategies to obtain this knowledge. This understanding could be applied in the sense that those with "enquiring minds" have a better sense of what they want to find out from their outdoor experiences and therefore engage with them more than those who are disinterested.

Although persuasion is often met with reactance, some participants stated that if they used anthropocentric reasoning to justify sustainability actions, they were able to prompt others to consider changing their own actions. Sophie is an undergraduate studying environmental law. Both Sophie and Mabel are vegans and discussed how they challenged their parents' dietary choices by drawing on human health instead of animal welfare reasoning:

> "I do not want to come at it with my mum from an animal rights perspective, I wanted to come at it from a human health perspective" (Mabel).

> "[My dad] keeps saying I always thought veganism was about these people who love animals, but really it is a health thing. I am like, well it is a bit of everything [laughs]. Environmental things as well, I think he likes the fact I am doing it for my health and not for other reasons" (Sophie).

In the examples outlined above, participants considered appealing to anthropocentric reasoning to be more useful when justifying their dietary choices. However, appealing to human interests may hinder the development of an ecological self (Næss, 1985), because limiting concerns to human interest prevents the recognition of the

interconnections that exist between a person and the more-than-human natural world. Critiques of environmental social marketing support this conclusion. Crompton (2008) noted that emphasising monetary gain with regards to sustainability actions stifled further action in situations where there was no monetary gain. Therefore by using anthropocentric reasoning, people may not be prompted to consider and act in the interests of the more-than-human natural world when they can see no benefit to themselves. Additionally, by reasoning actions at an anthropocentric level, the recognition of the ecological self and the ontology of connection it entails are ignored.

The previous paragraphs served to illustrate the difficulties of changing the sustainability actions of others, highlighting the problematic role that knowing plays in this process. In contrast to directly informing others through providing reasoning and education, Olivia, an academic in her mid-forties, believed the best way to engender change in others is through personal example. She stated:

> "Leadership by example is by far the strongest form... So actually to live a life that is full of fun and joy and on the surface looks like everyone else's, but is actually quite substantially de-materialised and does not follow the norm actually pleases me... Because I think it helps to look vaguely normal but be quite different" (Olivia).

Olivia considered personal example to be the most effective way of influencing the actions of others. Olivia's example could be considered to inspire ways of knowing across the epistemology of connection, in contrast with purely providing cognitive information designed to instruct someone to do something.

In summary, the relationship between education and action has been observed to be complex, not linear as often assumed by knowledge-deficit models of behaviour change (Kollmuss and Agyeman, 2002). Education, particularly in its later stages provides a fertile environment for individuals to form connections with other people and the natural world; these experiences often engender and sustain action on sustainability issues. However, didactic, top-down modes of instruction that rely on fear were observed to be insufficient to educate on sustainability issues. In contrast, dialectic and experiential modes of learning and teaching were perceived to have a greater impact on how people understand and act on sustainability issues.

Decision making and reasoning

This chapter now considers the role knowing plays in how the participants make decisions about their own actions. Mabel discussed the difficulties she had in transitioning to a vegan diet:

> "I stuck up a picture of a dairy calf on my notice board in my room at [university] and every time I craved cheese I looked at it or if I was out I thought about it. And I replaced my longing for cheese with knowing what was happening [to the dairy cow] and now the thought of cheese repulses me" (Mabel).

It appears that Mabel used the image of the calf to disrupt her habit of consuming cheese. Disrupting established habits has been identified as instrumental in tackling many day-to-day sustainability actions (Darnton et al., 2011). When people are confronted by something that causes anxiety they can employ coping strategies in which they ignore or deny it (Homberg, Stolberg and Wagner, 2007). However, it seems that instead of denying her knowledge in order to avoid anxiety, Mabel used the picture of the calf to reinforce her knowledge of the dairy industry. The image could be considered to provide both cognitive and affective stimulus designed to result in a particular behavioural outcome. Throughout her interview, Mabel expressed a sense of self that was intimately connected with the more-than-human natural world; for Mabel, dairy farming was inimical to her sense of self, suggesting how cognitive and affective knowing provided grounds for action. With regards to Mabel's consideration of dietary actions, it could be thought that both ontological and epistemological considerations of connection are related to the action she takes. This is because both the ontological sense of interconnectedness and epistemological sense of the different ways of knowing and experiencing the issue, appear to play a role in her consideration and action. Additionally from the perspectives of both deep ecology (Næss, 1989) and ecopsychology (Fisher, 2002) Mabel's self-motivation to change her dietary choices may illustrate that she will be able to maintain these changes over time. Mabel's discussion of the industrial processes involved in meat and dairy production raised a number of questions of the role of knowledge in sustainability action.

It appears that ignorance and denial play a significant role in many peoples' knowledge of sustainability issues like industrial farming. Surveys illustrate that many children (British Nutrition Foundation, 2013) and young adults (LEAF and Onepoll cited in Clarke, 2012) are unaware of where their food comes from. However, for those who are aware of how their food is produced, both denial (Homberg et al., 2007) and limiting exposure to this information (Norgaard, 2006) can help to explain why they may not be moved to act on this issue. In addition, both the value and connection a person ascribes to the non-human animal in question may also play a role in their acceptance of its treatment in industrial farming. Pleasure also plays a role in decision making (Homberg et al., 2007). If a person values the pleasure they obtain from consuming dairy products over their cognitive and affective knowledge of its treatment, then they may continue to consume dairy products in spite of this.

In this instance, psychological theories of environmental behaviour are able to provide a nuanced understanding of the role knowledge plays in Mabel's decisions to alter her dietary habits. Psychology treats the context in which Mabel makes her dietary choices as an external variable to be altered in order to disrupt entrenched habits (Aarts et al., 1999). However, social practice theory envisions context as integral to habits and routines (Darnton et al., 2011). Later in this section, Olivia's discussion of how she altered her dietary habits illustrates that the elements of social practice and the structures they form are integral to either the maintenance or disruption of the practice in question.

This section now examines the ways in which participants discussed the challenges they faced in getting helpful information to make decisions about sustainability actions. Harry stated that “it is difficult to know how an individual can make a difference”. Harry's sentiments are shared by a number of other participants. Rosie, an environmental project worker outlines the difficulties she had deciding on ethical finance:

> “It can get hard [to act] if you think too much because you realise that things like ethical investment are not actually as ethical as they say. You think too deeply about things... It can be hard to get the full amount of information you need to make the decisions and you get cynical” (Rosie).

Conversely, Chloe, a secondary school teacher discussed fair trade and charity donations:

> "I buy fair trade coffee because I agree with the ideals but I know there can be corruption... We do give money to the big charities and you wonder where your money goes, but you have to donate, you cannot say I am not going to. I feel the money will do some good, I try not to be too cynical" (Chloe).

Although criteria for completeness of information may vary for different sustainability actions, both examples outlined above indicate the casting of an economic vote (Dickinson and Carsky, 2005). Kollmuss and Agyeman (2002) state that the relationship between environmental knowledge and action is complex and there is little evidence that knowledge is a direct, causal influence of action. Rosie stated that not having "the full amount of information" makes it difficult to make decisions. Rosie also stated that when it is difficult to get information it can make her cynical about taking action. In contrast, Chloe argued that cynicism is no excuse for inaction. To borrow from the conceptualisation of wicked problems (Brown, Harris, Russell and Deane, 2010; Rittel and Webber, 1973) discussed in chapter two, it should be recognised that it is rarely possible to have complete information on sustainability issues. Therefore people need to be comfortable with the uncertainty that surrounds decision making on these issues. It appeared that while Chloe is comfortable with everyday wicked problems, Rosie finds them difficult to address.

Olivia's work as an academic exposed her to the academic discourse on habit formation. Olivia discussed how she tackles one action at a time:

> "I try and move more things into just the way I do them and it is not just [sustainability actions], because I had not been eating properly for a few years. So the last three and a half months, going home and cooking some proper food that is wholesome. I have been trying to make it just the way I do that. I leave work at six-thirty because I need to go home and cook my tea and now that is starting to become a bit more of a habit. It does not happen all the time because there are other things that intervene but when it does not happen I think oh, I have not had some nice, decent food. So there are all sorts of things I try... Some pro-environmental behaviours fit in that category as well" (Olivia).

Olivia displayed self-awareness by applying the knowledge she has gained through her engagement with the academic literature to change her dietary habits. Akin to Mabel's example outlined earlier in this chapter (p.180), Olivia described how she disrupts her previous dietary habits by trying to leave work earlier in order to make time for her to cook healthier meals and develop new, healthier dietary habits. This example reinforces the conception that if a person is adequately informed and motivated then psychology can offer insight into how actions can be reformed (Darnton et al., 2011).

In addition to psychological understandings of habit change, the lens provided by social practice theory and the actions framework can also be applied. Social practice theory asserts that actions are embedded in both knowing and the wider context in which action occurs. Knowing encompasses Olivia's self-awareness which enables her ability to apply the knowledge from an academic context to influence her action. Knowing is also involved in Olivia's understanding of the meaning of a healthy diet and her ability to cook healthy meals. Physical materials such as foodstuffs, utensils, money and energy are among those required to be able to produce a meal.

Once these elements of knowing and materials are taken into account, it is then useful to examine the role of time in regulating dietary actions. Social practice theories subsume time into their constituent elements (Shove et al., 2012) including it as part of their consideration of soft infrastructure (Darnton et al., 2011). Olivia's example illustrates the importance of time in that the possibility for her to undertake healthy dietary actions is greatly influenced by her time spent working and balanced by other commitments. Work plays a significant role as an institution in ordering the time a person has available to perform other actions. This emphasises the need to be acutely aware of the way commitments in a person's life can order time, limiting the actions they are able to perform.

In addition, Olivia's example of making lifestyle changes by adopting healthier dietary actions illustrates she is willing to work to improve her health and well being, indicating her commitment to the development of connection to her self, a process which is instrumental in achieving sustainability action (Ericson, Kjønstad and Barstad, 2014). This is supported by perspectives from ecopsychology and mindfulness that argue

that poor health and well being are some of the root causes of unsustainable practices and ways of being (Fisher, 2002; Ericson et al., 2014).

In summary, psychological theories of behaviour are useful to understand the reasoning a person undertakes when making decisions on sustainability action. Complementing this understanding of a person's thought process, social practice theory and the actions framework employed in this study enable a fuller understanding of the material and temporal context in which a person performs sustainability actions. Additionally, the application of both psychological and sociological theories enables a holistic understanding of how unsustainable habits become entrenched and what is required to disrupt them (Darnton et al., 2011).

Affective dimensions of action

This section focuses on participants' descriptions of the role of the affective dimension of knowing in action; it examines the roles of despair, belonging and belief in sustainability actions. The following quote centres on the despair felt by Sally that her actions would not have a significant impact. Sally, an environmental charity inclusion worker in her late twenties stated:

> "My partner and I saw a blog about someone who is trying to give up disposable plastics for a month and we thought we would try that too... Yesterday my partner said we are going to have such a big impact, but she said it sarcastically. It is nice to push ourselves to try these things, and I think in our lives we will have an impact, but on the grander scale of what is happening around us it is nothing, absolutely nothing. So I find that a bit disheartening, this sense of trying to do things on an individual basis, but everyone around us, their [detrimental] impact is massive" (Sally).

Macy and Johnstone (2012) argue that despair arises from the uncertainty that personal actions on sustainability issues will have a wider impact in tackling global issues. Despair is conveyed by Sally's quote as she states that she feels her action would not have any impact. Macy and Johnstone (2012) assert that this uncertainty should empower people as they cannot know what will happen in the future and therefore "there is room for [them] to play a role in influencing what happens" (Macy and Johnstone, 2012, p.320). There is convergence between Macy and Johnstone's (2012) characterisation of 'active

hope' and Orr's (2004b) description of 'practical hope'. Both interpretations of hope advocate acting to address sustainability issues without worrying if humanity will succeed in meeting these challenges. In this vein Sally continued stating "so I just chug along and do my little thing". Sally's statement illustrated that if the despair of considering action insignificant can be overcome, then people can begin to address sustainability issues from the bottom up.

Cara spoke about how her sense of belonging led her to join a transition movement. Cara, an environmental project worker in her mid-twenties stated:

> "I loved [town name], and it is outdoors, but it is not all natural. I am also thinking about the old buildings and everything else, which I really love… [I] wanted to get involved with transition to protect this place" (Cara).

Cara believed that the love for a town she had lived in for a number of years led her to take a significant role in setting up a transition movement there. The aim of transition movements are to reimagine and organise communities in the face of climate change and social inequalities in order to cultivate human and planetary well being (Hopkins, 2009). From psychology, the concept of belonging can be understood as place attachment; its relationship to sustainability action is both complex and contested (Uzzell, Pol and Badenas, 2002). Nevertheless, R.G. Jones (2015) argues that place attachment could be considered a determinant of the intention to act. Figure 6.2 illustrates the relationship between the determinants and outcomes of place attachment.

Figure 6.2 Determinants and outcomes of place attachment (taken from Jones, R.G., 2015, p.123)

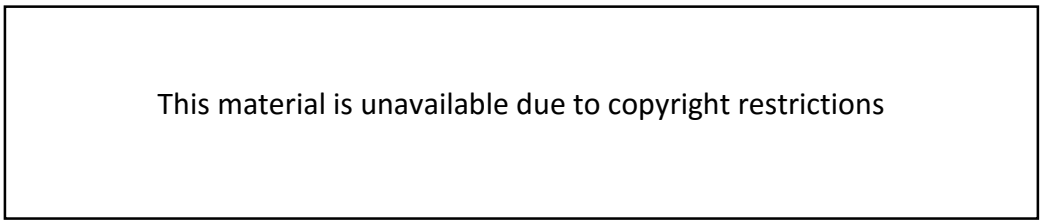


Figure redrawn from: R.G. Jones, Psychology of sustainability: an applied perspective (New York: Taylor & Francis, 2015, p.123).

Applying R.G. Jones' (2015) framework (Figure 6.2) to Cara's example illustrates how time and experiences in a place contributed to the sense of belonging she felt. The psychological concept of place attachment is informative when considering belonging

and connection. Although connection to place is not considered in great depth by this study, it clearly has an important role to play in engendering and supporting sustainability action. Cara lived in the town for an extended period of time and throughout the interview described positive experiences there with other people. Additionally, Figure 6.2 incorporates social connection, further illustrating the argument presented earlier in this thesis that connection to others is important in fostering actions for sustainability. It appears that Cara's connection to others informed her level of place attachment which in turn influenced her intention to undertake sustainability actions.

Very few participants spoke about the impact they perceived religious beliefs to have with regards to their sustainability actions. Johnstone (2014) explains that often religious identities are seen to be at odds with environmental identities. Stacey is a postgraduate student in her early thirties and was one of two participants who did not self-identify with environmental and sustainability movements. During Stacey's interview it became apparent that she had a strong interest in social justice issues:

> "My boyfriend and I, we go to church a lot, so I suppose my values are linked with principles of Christian behaviour which is the same as it is in Islam, the same in many religions and cultures. It is a moral code about being kind to your neighbour and helping people in times of difficulty and treating other people as you would want to be treated. Those things are important to me" (Stacey).

Stacey noted that the values which influence her action are linked with principles of Christian faith. Daloz and colleagues (1996) landmark study into the life histories of those addressing social issues described religion and spirituality as integral to many of their participants. This thesis considers social justice to be an integral part of working towards sustainability, indeed many organised religions share common aims of caring for the poor and addressing social injustices which are also pursued by sustainability movements (Johnston, 2014). Additionally, Stacey noted there were parallels between her faith and other religious and cultural systems. Macy and Johnstone (2012) support this sentiment, acknowledging that arguments for engaging with social justice and environmental sustainability can be found in many of the world's belief systems. Furthermore, Næss (1986) illustrated how a variety of belief systems can arrive at his conception of the deep ecology platform, providing a rationale for sustainability action.

Stacey's statement on "treating other people as you would want to be treated", alluded to the ethic of reciprocity (Blackburn, 2003). Although most participants did not directly speak about religion or spirituality, a number of them mentioned using the ethic of reciprocity as a heuristic to guide their actions. Isla is a postgraduate student in her late twenties and her thoughts are outlined in the extract below:

> "I am a bit obsessed with the golden rule... There is a rule that is in all religions, which is treat others as you would like to be treated… If you would like people to be organising things to make the world a better place, then you have to do that. If you would like people to help you out and volunteer, then you have to do that too... That is the maxim that I live by... It also includes future generations" (Isla).

Isla described how consideration of the ethic of reciprocity influenced her actions. The ethic of reciprocity is a form knowing that can play a part in guiding decision making on sustainability issues. Its formulation asks a person to imagine how they would like others to treat them, hence stimulating perspective taking (Schultz, 2000). By requiring perspective taking it establishes and maintains connection with others.

Additionally Isla stated that "it also includes future generations", suggesting that the ethic of reciprocity should be used to consider the impact of present-day action on the lives of future people. This temporal element to Isla's concerns is encompassed by many conceptualisations of sustainable development from the Brundtland Commission (1987) onwards (Baker, S., 2006; Dresner, 2008). While understanding the impact of present-day actions on future climates and people is fraught with great difficulty and uncertainty (Garvey, 2008), this should not negate people acting in the spirit of active hope and doing what they can in their time (Macy and Johnstone, 2012).

The ethic of reciprocity can be expanded from its human-centred formulation to consider the other to include all life and environments beyond the self. Parallels can be drawn between this expanded ethic of reciprocity and Leopold's (1970) land ethic which argues for decentring human beings from a privileged position above all other life and environments. However, perspectives in deep ecology find the ethic of reciprocity problematic (Wittbecker, 2006). A cosmological perspective on reality, which considers it all to be part of an unfolding, single, ecological self is incompatible with an ethic that

calls for the consideration of others (Fox, 1991). This serves to illustrate the tension between these different, disciplinary considerations of connection.

In summary, the section above described and explained the affective dimensions of action. It was observed that despair can result in inaction, but if the uncertainty associated with action can be conceived of as an opportunity then this can be overcome. Attachment to place creates opportunities for connection to other people and the more-than-human natural world, with the affective dimension of this attachment able to engender and sustain sustainability action. Faith, religious beliefs and ethical precepts which have affective dimensions also play a role in thought and action on sustainability issues. However, they also expose the disciplinary tensions around the conception of the self and connection.

Summary

The life history interviews presented a unique opportunity to evaluate the role of knowing in sustainability action. This section began by outlining the complex relationship between education and action, reinforcing earlier academic discourse in this area that decries what appears to be a problematic preoccupation with knowledge-deficit models of behaviour change on sustainability issues (Kollmuss and Agyeman, 2002). It was identified that dialectic, experiential learning and teaching methods were perceived to be much more effective in engendering action on sustainability. Additionally education, particularly when undertaken in later life, provides a nurturing environment for people to connect around sustainability issues and action. The application of both psychological and sociological theories of action can serve to elucidate how knowing informs action and delineate the context that bounds it. Furthermore, the application of these theories illustrates how unsustainable habits are formed, maintained and disrupted. Affective dimensions of knowing play a significant role in determining thought and action on sustainability. Importantly, an attempt was made to separate out the different dimensions of knowing, but it is evident from the participants' narratives that they overlap and interact with each other. Additionally, despite this section's focus on the elements of knowing, it was evident that it is extremely difficult to consider knowing without acknowledging the integral role of other

elements and structures. This awareness of the entangled nature of these elements is taken forward into the remaining sections of this chapter.

6.2.2 Material

In line with Shove et al.'s (2012) definition of material, the actions framework adopted by this study considers materials to be tangible entities that are required to perform an action. The body of the person performing the action is included in the definition of materials, although this study's participants did not discuss the body in this way. As all the elements and structures outlined in the actions framework must come together to create action, it often proves difficult to centre the discussion on one particular element. Nevertheless, this section focuses the discussion on materials, introducing other elements and structures as required.

Although the actions framework considers material to encompass any tangible physical entity required to undertake an action, participants' discussion of materials were primarily concerned with the access to and use of money. This is hardly surprising considering that for the most part living in the UK requires participation in the mainstream, capitalist economy where money is exchanged for goods and services (Jackson, 2009). As the physicality of money is contested (Baker, W.E. and Jimerson, 1992), it may appear controversial to include money within this discussion of materials. However, the examples outlined below illustrate that money and its exchange are often undertaken to obtain other materials, knowing and time, and structures required for action.

Local exchange trading schemes (LETS) provide an alternative to participation in the mainstream economy (North, 2010). Mark, a retired lawyer in his sixties discussed the informal arrangements he has concerning exchanging goods and services without using money:

> "We have got a good black economy going here in trading things around. I trade my work for services and other things too. I am trying to cut banks out of things but I am not trying to cut tax out" (Mark).

Mark used the term "black economy" to describe how he accesses some goods and services without participating in the mainstream economy. While the informal trading

of goods and services is in itself an action, the goods and services traded go on to provide elements and/ or structures for further actions. Informal local systems of exchange such as that described above by Mark have the potential to develop connection between people by strengthening relationships at a community level (North, 2010). These relationships can contribute to community resilience, which is instrumental in addressing broadening social inequalities and climate change (Hopkins, 2009). Additionally, all forms of local exchange remove the need for transportation between wider geographical areas, thereby reducing the impact of transport emissions on climate change (North, 2010).

A potential disadvantage of informal trading arrangements such as that outlined by Mark, is that people must trade directly with each other. Whereas participation in an organised scheme would enable trades to take place between three or more parties (North, 2010). In addition, when developing a local focus, concerns at broader geographical levels should not be neglected. The risks of focusing on local concerns are twofold: Firstly, influences on local issues and problems from wider spatial and structural scales may be missed (Marvin and Guy, 1997). Secondly, prioritising a local focus may encourage tribalism and othering of people beyond the immediate spatial scale (Daloz et al., 1996). Both of these risks can be addressed by recognising the interdependency of both humans and the more-than-human world at broader geographic scales.

A lack of access to money can also have implications for sustainability actions. For example, Dawn discussed how she decided to give up skiing partly because of the cost but also because of her awareness of its negative environmental impact. However, because her son enjoyed skiing she took it up again. Firstly, this illustrates the strength of the life history method to capture temporal variations in action, as a survey conducted on a specific point in time would fail to identify this. It also illustrates that while a person may profess to hold values in line with sustainability, other factors such as personal and familial well being factor into their decisions as to whether to act in line with their conception of sustainability.

Additionally, the need to access money has implications for the time that participants have to undertake other actions. In chapter four it was noted that due to their family situations growing up Freya, Sophie, Stacey and Patrick had to work during their teenage years to earn money. Sophie gave up volunteering as a Girl Guide leader so she could work in order to afford college and university. The need to earn money to support basic needs could limit a person's ability to engage in actions that promote sustainability. However, the role of money in supporting unsustainable action should also be considered (Orr, 2004a; Jackson, 2009). Finally, although not raised by participants the role of money in accessing knowledge, in particular through further and higher education provision should be acknowledged (Jerrim, 2013; Jerrim, Chmielewski and Parker, 2015).

As illustrated by these examples, money plays a significant role in the actions people are able to perform. However, the relationship between money and sustainability is more than just the simplistic treatment given by psychological theories of behaviour where it is considered just another variable in the wider context (Shove, 2010a). Money accounts for more than just access to green, efficient technologies or high consumption lifestyles (Jackson, 2009). With regards to the societies described by participants, money appears to mediate access to many of the elements and structures required for action. This suggests that in order to be applicable for a Western policy context, the actions framework proposed in this thesis should explicitly recognise the role of money in bounding sustainability actions.

6.2.3 Time

This section focuses on the role time plays in sustainability actions. The actions framework formulated from the literature placed emphasis on time because it sought to identify how time shapes sustainability actions. Shove and colleagues (2012) provide a holistic conceptualisation of time in their interpretation of social practice theory that was summarised in Figure 2.7. Time plays a multifaceted role in the creation and maintenance of action. The examples provided in this section are predominantly concerned with how sustainability actions compete for participants' time and how they fit into their time schedules. How actions change over time is addressed in a later section

of this chapter. Convenience, where actions are used to create and shift time (Shove, 2003b) has implications for sustainability and is discussed towards the end of this section.

Harry described trying to find other people to organise a wildlife garden:

> "I am trying to get a parish wildlife project going but the difficulty is the people who are interested are already doing so much around the village and in their own lives" (Harry).

Harry believed that the people who are interested in environmental sustainability are too busy doing other things. Harry's quote illustrated how sustainability actions compete for peoples' time commitments.

Olivia's extract below builds on the assertion above that sustainability actions compete for time. In the extract below, Olivia discussed why she does not like to spend her spare time in leadership roles in non-governmental organisations:

> "In the past I have not had time to be an active member of anything as I work quite substantially and if I am going to do anything outside of work, I prefer it to be a break from that… At one stage I was involved with [a non-governmental organisation], then they wanted me to be on their national committee because of my leadership role at work… If I am going to be involved in activist things I want to join in, not lead them as I lead everything at work. So I avoid these groups" (Olivia).

Olivia stated that her work limited the free time she had available. Additionally, as she has a leadership role at work, when she engages with non-governmental organisations outside of work she does not want to have to lead them too. Sally is an environmental inclusion worker who shares Olivia's sentiments. Sally stated that she does not read much about environmental issues out of work because as she works in the environmental sector she does not want to spend her free time reading about it. The sentiments expressed by Olivia and Sally illustrate that a person's work may limit their desire to undertake similar tasks out of work. Achieving a balance between work and time spent out of work appears to be important. Actions that may have positive impacts on sustainability are foregone in favour of enjoyment and/ or relaxation. Nevertheless, both enjoyment and relaxation are crucial to developing and maintaining personal well being which is both an integral part of sustainability and important for a person to be able to work towards it in the longer term (Ericson et al., 2014).

Convenience plays a significant role in explaining why participants do not engage in a number of sustainability actions. Shove (2003b) states that convenience acquired its current colloquial meaning as a mode of saving time during the 1960s, though its original definition was actually concerned with "fitness for purpose" (410). Therefore, Warde, Shove and Southerton (1998) differentiate between modern and hypermodern convenience. Convenience in the modern sense is concerned with reducing time to achieve a goal, whereas hypermodern convenience is concerned with "storing or shifting time… [to] provide people with greater flexibility or control over their schedule" (Shove, 2003b, 411). Participants explicitly discussed convenience in the modern sense. For example, Rosie usually buys fair trade produce where she can; though in the extract below she explained why she was not able to the previous day:

> "I bought some tea bags yesterday that were not fair trade because we ran out of tea and the village shop does not do fair trade" (Rosie).

It was convenient for Rosie to go to the local shop instead of traveling further afield, and by choosing to forego her usual commitment to fair trade she was able to save time.

Although convenience probably figures into most decisions the participants made on sustainability actions, the example mentioned by most participants was banking. Most participants considered switching to a bank with stronger ethical credentials to be inconvenient because they thought it would take too much time and/ or they considered high street banks with many branches to be more accessible and hence convenient. The quotes below illustrate some of the participants' perspectives on banking:

> "I still bank with Lloyds because I have not got round to changing it, I am a bit ashamed about that" (Olivia).

> "I think that if the Co-op Bank takes over our local Lloyds TSB as part of the selloff I will move from HSBC who I have been with for a very long time… I could be with the Co-op Bank while living in [town name] but I am not enthusiastic about internet or telephone banking. I am old fashioned and dumb enough to prefer to talk to somebody." (Harry).

> "I do not have any ethically responsible financial products, partly because I am lazy… I stick with what I know. I think I do not have enough money to make any difference, but I suppose I do… One of the things is I like using a bank, a [physical] bank that I can go

> into and chat to people, and ethical banks do not tend to be, there is not a Co-operative Bank locally" (Isla).

From the extracts above it can be observed that time factors into Isla and Olivia's reasons for not changing banks. Banking could be considered a habitual behaviour which requires great effort to disrupt (Darnton et al., 2011), and the perceived time required appears too great for Isla and Olivia.

Additionally both Harry and Isla note the importance to them of having access to a physical bank where they can talk to people in person. It could be asserted that online and telephone banking, which are often accessible from anywhere and at any time of day or night, are potentially more convenient; indeed their uptake in the general population has increased significantly in recent years (Office for National Statistics, 2014b). However, Harry and Isla's emphasis on using a 'physical' bank suggests that they place value on face-to-face interactions over convenience.

In summary, time figures into sustainability action at a number of levels. Time is required to perform all actions, and thus sustainability actions compete with other tasks for time. Factors such as needs and expectations including convenience can influence if a person decides or is able to undertake an action.

6.2.4 Structures

The actions framework developed in this thesis illustrates how elements come together to form structures across varying spatial scales. Structures encompass a number of actions and their constituent elements in particular configurations. This section examines how different configurations of the elements of action support and/ or hinder action on sustainability issues. Many institutions, services and groups from local to global scales, such as the LETS and high street banks discussed previously in this chapter can be considered structures that have the potential to facilitate or limit action on sustainability issues. This section offers an explanation of the structures involved in sustainability actions relating to travel and recycling. Additionally, the role of structure in mediating the relationship between geography and sustainability action is also discussed.

Travel

Iona is a postgraduate in her late twenties, the extract below outlines her consideration of travel:

> "Your travel is largely influenced by public transport provision… You cannot say that wider society is responsible for all our behaviours, but it can certainly facilitate people having better behaviours if the system was tweaked and done differently" (Iona).

Iona described how the existence of infrastructure and transport services provided by the government play a role in shaping the actions of those who live in an area where they are provided. Sally lives in a major city in southern Scotland where she considered the public transport provision to be very good. She states that this meant she did not have to drive or own a car. Both Cara and Wanda live on the east coast of Scotland and compare the public transport in Scotland to be favourable to their experiences in the US. Wanda, a postgraduate student in her mid-twenties makes a similar comment to Iona's, stating that "society enables things such as public transport use and that shapes behaviour". In contrast to the examples above, Alice, an environmental educator in her late thirties, commented that where she lives in the north east of England, she considers public transport provision to be poor. Additionally, as Alice's work requires her to travel great distances to remote areas, this necessitates the use of a car. People's needs vary according to many factors including employment, leisure, friends and family. The ability of public transport to meet these needs will determine (in part) the extent to which a person is able to adopt sustainable travel actions.

Recycling

In contrast to her description of travel above, Wanda considered the structures that facilitate recycling where she lives in Scotland to be less effective than those she had access to at home on the west coast of the US. Ingrid, a postgraduate student in her late twenties is from a similar area in the US to Wanda, described recycling provision there as follows:

> "I got [my family] to start recycling when I went home a few years ago. It is easy there, you have these green plastic bins you fill up, [all recyclables go] in one, you put it on the

> sidewalk and it gets picked up. I do not know why they just needed that extra step [*sic*]" (Ingrid).

Ingrid notes that the structures for kerbside recycling have been present in her parents' area for some time, but they needed her encouragement to utilise them. Ingrid's parents' waste disposal actions could be considered an established habit which required her intervention to disrupt and establish new, more sustainable actions (Darnton et al., 2011).

As in the above discussion regarding travel, despite the accessibility of structures, participants can have differing perceptions of similar recycling provisions based on their expectations and needs. In the extracts below Dawn and Mark described opinions of the recycling provision provided in their area of the east of Scotland:

> "[My husband] sees recycling as the responsibility of the council and sees it as a waste of my time and petrol to drive into town to the recycling centre. As we live in a village we only have [limited kerbside provisions]" (Dawn).

> "I think recycling is a load of crap… I do not see the point of driving to put bottles and cans in recycling bins… It is a copout for the council who should be coming round more and collecting it" (Mark)

Both Dawn's husband and Mark expressed negative opinions on similar recycling provisions stating that local government should take more responsibility for it. In contrast, many of the other participants in this study spoke about how favourably they considered similar recycling provisions. This reinforces the earlier discussion that a myriad of expectations such as convenience and preference play a role in how participants interpreted the utility of structures such as a travel and recycling.

In summary, participation in recycling in the societies described by participants depended on local government who organise waste collection and processing. Different systems designed and employed by different localities require a person to be involved to a greater or lesser extent. Different people hold different opinions about these systems, particularly due to their perception of the level of personal involvement required.

Place

The persistence of structures in a geographical location over time appears to have an impact on the thought and actions of the people who regularly interact with them. Rory grew up in the west of Scotland near the UK's nuclear submarine base and described how he felt other people in that area perceived actions associated with non-proliferation activism and why that might be the case:

> "You come across some people who are derogatory when they refer to some of the behaviours associated with activist camps... I grew up fifteen miles from the Royal Navy nuclear submarine base... The civil space was dominated by pro-military attitudes because a lot of people were employed in that sector" (Rory).

This sentiment was shared by Freya who grew up in the same part of Scotland. These participants appear to be arguing that exposure to and dependence on the structures that support the Royal Navy base may prevent people from considering alternative perspectives on these issues. This chimes with the earlier discussion of place attachment, in that people have formed connection to these spatially located structures, illustrating a potential circumstance in which connection may not be in the interest of sustainability action. Additionally, as identified above, a number of people in the area draw their livelihoods from the nuclear submarine base. This discontent over activism could be explained because such activism can disrupt their ability to make provision for their personal well being and that of those who depend on them. As personal well being is considered here to be an integral part of sustainability the conflict is evident. This example illustrates the complexity and multifaceted nature of the relationship between structure and sustainability action.

In a similar vein, while enduring structures can arguably inhibit the acceptance of sustainability thought and action as above, structures in an area can also be perceived to engender consumption and other actions associated with unsustainability. Chapter four introduced Rosie's description of her rural upbringing. Towards the end of the extract she asserted that her rural upbringing made it difficult for her to live in a city environment, stating "I am not a city person and a lot of consumption and shopping are by nature, city". When examined against her previous discussion of how the hard and

soft infrastructure of the rural environment engender actions of resource conservation, it appears that she considered the commercial structures that prevail in city environments to encourage consumption, an assertion that chimes with Warde's (2005, 2014) applications of practice theory to consumption.

It was suggested above that structures can prevent thought and action on issues concerning sustainability. In contrast, the next extract suggests that the disruption of these structures can offer new opportunities for sustainability action. Chapter four outlined Freya's experience of the 2010 Canterbury earthquake in New Zealand. Freya went on to describe how, despite the tragedy of the earthquake, it provided opportunities for reimagining the structures that situate everyday life. Freya stated:

> "[The earthquake] illustrated to me some of the opportunities, not for just other ways of thinking about our day-to-day behaviours or attitudes, but also that we could redesign the infrastructure and all it encompasses. To reorientate our lives to be more aligned to the environment, or promote a sense of equity" (Freya).

Freya commented that the disaster's destruction of infrastructure offered an opportunity to reimagine and design the structures that govern daily life. As was described in chapter four the earthquake represents a disorienting dilemma (Mezirow, 2000) or disruptive experience (Kasser, 2013), which presents an opportunity for transformation in how sustainability is conceived of and enacted. Thus potentially unsustainable habits that were entrenched by the structures in the area have been disrupted (Darnton et al., 2011).

Nevertheless, Finger (1994) asserted that experience of disaster was only associated with less than average or average environmental behaviour. However, Finger (1994) was working in a context where he would have predominantly surveyed people that came in to contact with environmental disaster beyond their everyday lives. In contrast, for Freya and people like her living in the aftermath of the earthquake, the disruption to pre-existing structures and the actions they engendered offered an opportunity for change.

Additionally, this discussion should not be considered tacit approval of disaster as a mode to change people's perspectives and actions on sustainability. This has been an arguably unfounded criticism raised of SLE research in the past (Gough, S., 1999). It

should be noted that neither this study nor prior SLE research (Chawla, 2001) condone experiences of disaster as a method for engaging sustainability action, they merely seek to describe and understand the possible changes in thought and action that arise from them. This line of enquiry parallels research into post-traumatic growth in psychology (Tedeschi and Calhoun, 2004).

In summary, the paragraphs above provided examples of the direct and indirect role structures in a place have in shaping thought and action on sustainability issues. Additionally, the potential of disasters to disrupt habits were also recognised.

Summary

Structures represent the configuration of a number of elements and their constituent actions and have different potentials to contribute to or hinder sustainability action. This section illustrated that structural provisions that embody institutions and services such as public transport and recycling vary spatially in different ways. Factors such as needs, expectations and convenience among others influence the participants use and opinions of these structures. Additionally, interaction with particular structures in geographic locations can influence how a person thinks and acts with regards to sustainability issues. Finally, it was recognised that the disruption of these structures offers an opportunity to transform entrenched habitual action.

6.2.5 Conclusion

This section reviews the findings presented above, summarising them towards addressing how the elements of the actions framework can be used to describe and understand sustainability action (research question 3a). The constituent elements are reviewed in turn and concluding thoughts are offered on the utility of the actions framework as an integrated model of action.

The life history interview was well-suited to engaging participants on a discussion of their perceptions of the role knowing plays in sustainability action. Knowing across the dimensions identified in chapter two was illustrated to inform learning and decision making on sustainability actions. However, the roles of other elements and structures, habits, needs and expectations, among other influences should not be understated.

Nevertheless, although proponents of social practice theory may consider the role of knowing in action to be overstated (Shove, 2010a; Warde, 2014), the evidence presented in this study illustrates that when action is a conscious decision, knowing has an important role to play in conceptualising thought and action on sustainability issues.

The discussion of material was characterised by participant discussions on how they use money to obtain the materials required for action. The exchange of materials among other elements in a local area has the potential to foster connection with other people, reduce transport costs for physical materials in terms of emissions and build resilience in the face of an uncertain future. Money, whether through a lack or abundance, can both facilitate and hinder sustainability action. The dominance of money in this discussion highlights its relevance for policy considerations.

Sustainability actions compete with many other day-to-day actions for a person's time. Sometimes sustainability actions are foregone due to inconvenience to the actor or because other needs including enjoyment and relaxation become a priority. Although some sustainability actions save time, such as online banking, which characterises many ethical financial provisions, participants perceived the initial time investment to switch banks to be too great, or they preferred to perform this action face-to-face.

Structures encompass the constituent elements of action, both facilitating and hindering action on sustainability issues. Public transport and recycling provision represent two structures, and their use by participants appeared to depend on whether or not they met participants' needs and expectations (including convenience). Structures can also incorporate institutions that exist in a particular geographical area, and can influence how people who come into contact with them, think about and act on sustainability issues. Disruptive experiences which perturb structures, along with their constituent elements and actions offer the opportunity for actions to be realigned along a sustainable trajectory.

The aforementioned paragraphs have illustrated that all these factors must come together for action to be enacted. As previously mentioned, although this discussion focused on knowing, this is not an indication of its primacy in the actions framework. Instead the dominance of knowing reflects that the life history method

employed in this study was well-suited to elucidate it. The following section examines how these elements and structures that characterise action change over time.

6.3 Changes across the life course

The life history method adopted by this study allows for phenomena to be studied across time. Chapter five illustrated how the life history method allowed for an exposition of changes in nature connection across the life course. The method also allows for an exploration of how action changes over time.

This section seeks to build a picture of both life course and broader temporal trends that influenced the participants' actions in order to address research question 3b. The first section examines changes in action over the life course, highlighting how the home environment entrenches habits and moments of change offer opportunities to disrupt them (Thompson, S. et al., 2011). The following section depicts broader historical trends in action, illustrating how changes in elements and structures across time result in different actions drawing on the examples of cleaning and recycling.

The actions matrix (A2.11) employed by this study to ascertain participants' level of commitment to sustainability issues provided crude age and decadal sequences of their actions (A3.1, A3.2). Unfortunately as this strength of the actions matrix was not recognised until towards the end of the data collection, it could not be employed to provide a coherent portrayal of participants' temporal trends in action.

6.3.1 Life course transitions

Unsurprisingly the sustainability actions participants engaged in changed during their life course. As a person goes through life, they come into contact with different elements and structures; thus different opportunities for action arise at different stages in the life course. This section addresses why participants may have been able to perform different actions at different times in their lives. The section begins by examining early influences on the participants' actions within the home environment. The remainder of this section outlines how transition points in the participants' lives have contributed to changes in their sustainability actions.

The extracts below outline how the environment in which a person grows influences the actions they take. In chapter four the influence of the home environment on participants' understanding of sustainability issues was discussed. The relationship between knowing and action is iterative and much of the discussion raised previously is relevant to the following discussion of action. Iona discussed the influence of family:

> "I think family more than friends [influence action] because you grow up with them, you learn how to live in the household [with them]. In my house we composted everything, so you learn why you are doing that… I think family has a huge influence" (Iona).

Iona's sentiment that family has a positive influence on the actions a person undertakes is shared by most of the participants. Many participants commented on how crucial they considered a person's early formative years to be in developing values, perspectives and actions. This extended time spent with a relatively small group of people builds bonds of social connection through shared experience (Hogg and Vaughan, 2005). Arguably these initial life experiences serve to establish habits that require either intentional disruption or a change in the elements and structures that comprise them to shake them up (Darnton et al., 2011).

The home environment can also engender unsustainable practices. Sophie described how her first step father undertook a number of sustainability actions. However, other members of her family acted as if they were both unnecessary and undesirable:

> "We always used to joke about my step dad being a stupid environmentalist because he would go through the bin and take out all the things that could be recycled… You look up to your parents as role models and do what they do. My step dad was full on and that was very confusing with my [biological] dad and other family who would leave the telly and lights on all the time, so I felt almost nonchalant about not doing things like that" (Sophie).

Sophie described the different environmental actions and values present in her home environments which caused confusion and initially led to her to be disinterested in these issues. While one parent would create an environment that supported environmental actions providing the elements and structures necessary to act, other parents would disrupt and negate this. Psychologists have termed this confusion stemming from

conflicting ideas and action 'cognitive dissonance' (Steg and Tertoolen, 1999). Steg and Tertoolen (1999) illustrate how cognitive dissonance can result in reduced action on environmental issues when these attitudes are poorly supported.

Previous research has identified the importance of moments of change such as leaving home, becoming a parent or moving home to provide an opportunity for changing a person's sustainability actions (Thompson, S. et al., 2011). The field of research into transformative learning refers to these moments as disorientating dilemmas (Mezirow, 1990). This understanding has been applied to the changes in thought and action discussed in chapter four. Additionally, as discussed in the previous section on belonging, proximity to other people and the connection it stimulates has an impact on how a person comes to know and act in the world. In the extract below Iona described how she felt moving away from home impacts on who a person relates to:

> "I think when you get into adulthood if you move away and have a bit of distance between you and your family, your friends could have a heavier influence then. However as someone who has been away, but not far I think in my case my family had a bigger influence" (Iona).

Iona's thoughts reflect Arnett's (1998) definition of the period between ages eighteen and twenty-five, when young people create their own identities in relationship with those who surround them as emerging adulthood. Therefore, as Iona stated, if a person moves away from the home environment and is surrounded by friends then it follows they will likely have a greater impact on identity formation during this period than the family. Jim described that when he went to university he was able to find a group of people who shared his interests and activities. Jim stated that with these friends he was more able to actively pursue his environmental interests than he had been with his family at home. However, Iona thought that because she stayed at home her family had a greater impact on her.

Ninety-six per cent of this study's participants attended university, in comparison to 27 to 40% of the population of the UK (Ball, 2013). Unsurprisingly moving away from home to go to university appears to have impacts on participants' sustainability actions. Sally described how at university she had greater control over her actions than when she was at home, but she had very different priorities:

> "At university I was in control of my own decisions and living independently. But my priorities were quite different… I did not think about environmentally friendly products, even though I was studying outdoor education and that involves sustainability… I did not do [ethical] animal products, I was thinking about money in my decisions… Most usually would use [public transport] because I did not have a car then, but it was a practical decision rather than an intentionally environmental decision" (Sally).

Sally described that at university the motivations for many of her actions were to do with money and what she had access to at this time in her life. In a similar vein, both Sophie and Isla who were students at the time of the study stated that they did not have enough money to have any impact using ethical financial products. It appears that sustainability actions easily become secondary when the money required to survive and thrive in society is in short supply.

Although the literature describes moving home as another opportunity for changing a person's actions on sustainability issues (Thompson, S. et al., 2011), very few participants described their sustainability actions in relation to moving home. In the extract below Sally described how moving into her own home will enable her to perform sustainability actions that she previously lacked control over:

> "I used to flat share until about six months ago and I did not [use environmentally-friendly cleaning products] very much, but I have been doing it more on my own. I just bought a house and it is part of my intention to make that normal behaviour… I do not really buy any financial products though that is going to change when I move house because at the minute the person who owns my house takes care of [the utilities]… so things like energy, I will look at it" (Sally).

Much of the academic research appears to focus on how moving home presents an opportunity for a person to further engage with sustainable travel actions (Thompson, S. et al., 2011). S. Thompson and colleagues (2011) also note that moving home can also encourage people to purchase more efficient appliances. However, Sally's quote illustrates that moving home results in changes to both every day and extraordinary sustainability actions such as cleaning, energy and financial products. Moving from renting to owning a home enables actions that may have previously been dictated to them by their landlord or negotiated between fellow tenants under a person's own control. Additionally, although prior research has primarily focused on physical

infrastructure and location (Thompson, S. et al., 2011), future research should recognise that moving home can completely reconfigure the sustainability actions a person is able to take, as different elements and structures become available in different locations. Research in this area by the Sustainable Lifestyles Research Group in the UK is ongoing and should deepen understanding of this area (Verplanken and Roy, 2014).

It should be noted that none of the participants described changes in the sustainability actions listed in the actions matrix in relation to having children. However as noted in chapter four, two participants described how having children changed their perspective, encouraging them both to move from London to the East of Scotland. Nevertheless, research has identified the potential for new births to engender changes in everyday sustainability actions (Thompson, S. et al., 2011). For example, Burningham et al. (2014) recently examined the scope for changing shopping practices around the birth of a child.

This section concludes by examining how at certain points in the life course a number of factors can come together to dramatically change action. Chapter four outlined Sophie's transformative experiences, whereby as part of her transformation she became a vegan. Sophie stated:

> "So I guess I am weirdly just in the right place to suddenly believe [becoming a vegan] is what I want to do" (Sophie).

Sophie described how in the past she had considered becoming a vegetarian, but as she enjoyed eating meat she did not. Sophie then described how she initially cut out dairy products for health reasons and further changes in her diet towards vegetarianism and eventually veganism "slowly trickled from there". In order to transition to a vegan diet she required access to specific elements and structures; her location at the outset of this change in the western US appeared to facilitate this as she described having easy access to vegan stores and restaurants, which she noted were much more difficult to access in the east of England. Hence, the role of convenience in facilitating the establishment and maintenance of sustainability actions cannot be understated (Shove, 2003a). Additionally, the support from her parents (described in chapter four) has provided further emotional and material support to sustain her dietary action, which a number of

researchers identify as instrumental to those undergoing significant changes in their lifestyles (Daloz, 2000; Freire, 2000). As outlined in the paragraph above a number of factors came together to both encourage and enable Sophie to make changes to her diet. The detailed, qualitative descriptions generated by the life history method enable the identification of these distinct yet interrelated factors.

In summary, a number of factors influenced the sustainability actions participants undertook during the course of their lives. While it was observed that the home environment can habituate both sustainable and unsustainable actions, these can be challenged by moments of change later in the life course. Additionally, while much previous research has focused on how these transition points create changes in the physical materials and structures that participants have access to (Thompson, S. et al., 2011), it should be recognised that opportunities for both mundane and extraordinary sustainability actions also change at these moments in time. Finally, the life history method allows for the development of an understanding of how seemingly independent yet interlinked factors over the life course can come together to fundamentally change action on sustainability issues.

6.3.2 Temporal trends

Historical temporal trends have a significant impact on what and how actions are performed (Shove et al., 2012). Reid (in prep) argues that the temporal trends of sustainability actions are under-researched, as the majority of studies only describe and evaluate these actions at one particular point in time. On the other hand, the life history interviews provided insight into temporal changes in action. This section examines the participants' accounts of cleaning and recycling, drawing out the temporal trends in these actions. Participants articulated how their knowledge and access to materials changed over time through the example of cleaning products:

> "I do not know if environmentally friendly cleaning products existed in the eighties, but if they did I think people were more driven by the marketing for the most powerful whites, the most vibrant colours" (Rory).

> "Environmentally friendly cleaning products would not be available from mainstream retail [shops]. If you subscribed to whole food distribution networks you would have

> had access to them… But [my parents] would have [chosen] the cheapest option" (Harry).

The environmentally friendly cleaning products discussed in the extracts above are materials that are used in the action of cleaning when it causes as little harm to the environment as possible. The quotes from Harry and Rory raised the temporal issues of availability and cleanliness. Additionally, Harry stated that cost would have been a factor in his parents' decisions on purchasing cleaning products, recalling the above discussion on the impact of money on action.

The availability of the materials employed in action changes over time. Once the knowing, time and materials required to discover and create these materials that support sustainability action are accounted for, the elements and structures that influence their use and uptake can be examined. Rory stated that when he was growing up thirty years ago, he was unsure if environmentally friendly cleaning products existed. Harry stated that in the past environmentally friendly cleaning products were only readily available through whole food distribution networks. In this instance, in order to access these cleaning products a person would have to be interested in whole foods. Over time, as public awareness increases, demand for these products increases and it becomes economically viable for mainstream shops to stock them (Palmer, A., 2012). As more people are exposed to these products through the shops that stock them and become aware of their marketing, more people use them (Palmer, A., 2012). Fair trade provides an archetypal example, although the modern movement was established around the 1950s in the UK and the Netherlands (Kocken, 2006), public awareness has only grown over the last twenty to thirty years, as it has become easier to obtain fair trade products through high street stores and fair trade town certification has increased (TNS CAPI OmniBus cited in Fairtrade Foundation, 2008). Alice corroborated this, noting that it is only in recent years that fair trade has enjoyed a prominent profile in public life.

Rory's statement that "I think people were driven by… the most powerful whites, the most vibrant colours" alluded to evolving conceptions of cleanliness (Shove, 2003b). Harry, Rufus and Mark discussed how they use very few cleaning products, preferring to

use 'elbow grease', vinegar and lemon juice and where required, a minimal amount of bleach. The twentieth century has seen an explosion of the variety of synthetic cleaning products available due to advances in chemistry, resource scarcity and demand among other factors (The Soap and Detergent Association, 1994). Shove (2003a) argues that as new products were developed, societal conceptions (driven in part by marketing) have created and transformed practices around cleanliness, changing the ways in which actions are considered acceptable to members of a society.

Recycling proved to be a popular topic amongst the majority of participants. The following quotes describe recycling in the 1950s, 1980s and 2010s respectively:

> "We were collecting newspapers to take down town, we got paid for returning paper, we got paid for jam jars as well, in old money I think a farthing per jar" (Mark).
>
> "I grew up in the seventies and eighties. I left home in '92 to go to university first so attitudes were quite different. Although I am sure there would have been people who recycled it would have been a much smaller proportion of the population" (Rory).
>
> "Now you are seeing more and more recycling bins going up in areas where traditionally there has been just one bin you chucked everything in, so that is definitely a good sign" (Mabel).

Mark commented that in the 1950s they were paid to return recyclable items such as paper and glass to the local swimming pool. In contrast, Rory felt that very little recycling happened in the 1970s and 1980s. Mabel described modern day kerbside recycling provision. Earlier in this chapter, the section on structures described how service provision makes contemporary kerbside recycling possible. Recycling is not a new phenomenon, although its modern practice finds its beginnings in the resource scarcity of the world wars of the twentieth century (Strasser, 1999) and the practice of wastelessness as studied by Reid (in prep).

It was noted that that existing service provision varies spatially according to variations in local and national government. The historical trends observed from the participants' testimony and Reid's (in prep) discussion of wastelessness illustrate that in the past service provision had a limited role to play. As Mark noted, recyclables were collected from central community locations such as the town swimming pool; there was no kerbside recycling which many participants appeared to take for granted. Mark

argued that in the past people used fewer resources and produced less waste. Mark outlined how he minimises his waste today by making use of both recyclable and non-recyclable items by repurposing them. Mark cited his parents' experiences of the Second World War (detailed in chapter four) as instrumental in his conception of wastelessness, a narrative which is reflected in the findings from Reid's (in prep) elderly participants. Mark's statement that resources and commodities were less widely available in the mid-twentieth century contrasts with contemporary ever-increasing trends in consumption and waste (Renner, Starke and Rosbotham, 2015). As resource use driven by consumption increases, waste increases, requiring increasingly complex structures provisioned by government to safely and promptly dispose of this waste.

Additionally, expectations of convenience (Shove, 2003b) may factor into the evolution of recycling provision. By contrasting Mark's description of recycling in his childhood provided here with his expectations for contemporary provisions outlined in an earlier section, it can be observed that Mark's expectation for convenience has developed over time. However, a number of other factors including the constraints of work and family may also influence this change in expectations. In summary, the participants' discussions on recycling corroborate Reid's (in prep) findings that recycling is not a new phenomenon but "rather an evolution of existing conventions" (18).

This section illustrated how elements and structure develop over time, their complex interactions changing the ways in which action is enabled and maintained. The development of materials aligned with the progress of technology and the increase in awareness of them through marketing and education, among other factors, help to reform action. However, action might not always be reformed towards sustainability. Additionally, as was observed in Mark's example above, the passage of time interacts with a person's stage in their life course to affect both expectations and actions. Finally, research that studies sustainability actions at a fixed point in time assumes that these actions, their constituent elements and constraints are perpetual, which fails to recognise historical change in addition to that over the life course.

6.3.3 Conclusion

This section sought to understand how and why action might change across the life course (research question 3b). Initially, the home environment establishes habits which take significant perturbation to change (Darnton et al., 2011). Contradictory opinions on sustainability action within the home appear more likely to result in a lack of interest and action on sustainability (Steg and Tertoolen, 1999). Moving away from home as a person enters adulthood offers one such opportunity for change, but there are also other transition points that can shift a person's sustainability actions (Thompson, S. et al., 2011). As explored in chapter four, other people play a significant role in the establishment and transformation of an individual's sustainability action. Connection to family in the home environment and friends later in life appear to be important in determining how people act on sustainability issues. Again as illustrated in chapter four, the potential for a number of factors to interact at certain points in the life course and engender transformation of sustainability thought and action cannot be understated. The life history method employed by this study is uniquely equipped to capture these seemingly independent yet interlinked occurrences. Additionally, the life history method was instrumental in identifying temporal trends in sustainability action which Reid (in prep) noted have been largely neglected. The findings presented above illustrated how action on sustainability issues such as cleaning and recycling change over time as their composite elements and structures evolve.

6.4 Connection and action

Chapter five established that connection typified across the dimensions of knowing (epistemological) and with the more-than-human natural world seen as interrelated (ontological) or integral (cosmological) to the concept of self, appears to be related to concerted action on sustainability issues. This section brings together evidence and discussion from earlier sections of this chapter to examine the relationship between connection and action on sustainability issues (research question 3c). The section begins by examining connection evidenced in the actions framework and then moves on to discuss temporal trends in connection and its relation to action. Where appropriate, this

section draws evidence from the previous results and discussion chapters in this study. Finally, the concluding paragraph suggests that the examples of connection discussed below all have extended time and involvement in common. This appears to form connection across the dimensions of knowing which in turn facilitates action on sustainability issues.

The beginning of this chapter examined the elements and structures which engendered action. As noted earlier in this chapter, connection is not a prerequisite for action. However both this study and previous research has illustrated that connection appears to result in concerted action on sustainability issues (Millar and Millar, 1996; Pooley and O'Connor, 2000; Cheng and Monroe, 2012). Chapter five identified how connection to the more-than-human natural world could result in action on sustainability issues. The following paragraphs examine how connection to other people and the self can result in action on these issues, with the aim of identifying commonalities at these different scales of connection.

This chapter illustrated the potential for connection to place to instil action. Cara described how her love for a town encouraged her to found a transition movement. As previously noted, the relationship between place attachment and sustainability action is contested (Uzzell et al., 2002). Nevertheless, it would appear that spending an extended period of time in a place not only develops a person's attachment to that place but creates opportunities for them to develop connection to their self and other people, which may result in them taking further sustainability action (Jones, R.G., 2015).

Earlier in this chapter it was illustrated that education, particularly in its later stages, offers opportunities for people to form connections with other people around sustainability thought and action. Rory described how his Masters course created a space for interaction on sustainability issues. Daloz et al. (1996) identified educational spaces as a safe environment in which people can form bonds of connection with others, which in turn increase their propensity to act on sustainability issues. Additionally, the findings of chapter four support this, as participants identified connection with other people as significant, providing them with the mentoring and support they required to further their action on these issues.

The discussion of LETS earlier in this chapter presented another example where connection to people and place overlap to contribute to sustainability. As was identified earlier, the exchange of goods and services in a local area has the potential to strengthen social cohesion, increasing community resilience in the face of an uncertain future (North, 2010).

Rory also described how his Masters course created a space for reflection. Chapter five identified that reflection was part of the process by which participants appeared to come to an understanding of the interconnections between their self and the more-than-human natural world. Participants who discussed this also reported undertaking a greater number of sustainability actions. Throughout this chapter a number of descriptions of reflective thought processes undergone by participants were identified in which participants change their actions to bring them in line with sustainability. Mabel's discussion of giving up dairy products and Olivia's description of altering her dietary habits were two such examples. By moving to address this cognitive dissonance between their previous thought and action, they move to a more dependable (Mezirow, 2000) and connected sense of self.

Chapter five illustrated that connection has the potential to change over the life course. Moreover, the previous section illustrated that action changes across the life course. At the beginning of the life course, social connections to family in the home environment can habituate both sustainability action and inaction. Later, if a person leaves home as they move for work, university or other reasons, they form social connections with different people. Arnett (1998) identified the period between ages eighteen and twenty-five as particularly formative in shaping a person's thought and action. During this period people construct their identities in relationship with those who surround them. It follows that these social connections, through the support and mentoring they provide can disrupt previously entrenched habits and/ or establish new habits that have implications for sustainability action.

As previously stated, although connected ways of knowing are not required for action, they appear to result in concerted action on sustainability issues. In chapter five the concept of the value-action gap (Blake, 1999; Kollmuss and Agyeman, 2002) was

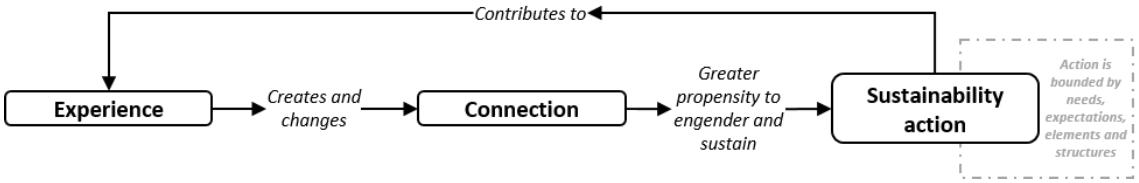
utilised to explain why connection may not always result in action on sustainability. Participant responses provided in chapter five illustrated that a number of participants considered modern urban living to hinder both connection with nature and action on sustainability issues. This chapter has elucidated the elements and structures of contemporary life which situate and bound the actions of participants. These elements and structures can habituate behaviours and establish practices which participants may not be fully aware of (Darnton et al., 2011). As these actions may occur beyond the consciousness of the participant, reflection which plays an integral role in connection, does not take place. Additionally, participants' needs and expectations including convenience were also illustrated to play a role in determining if sustainability actions were undertaken. It appears that these requirements can often negate any connectedness a person may describe.

Chapter five discussed barriers to nature connection, with a number of participants relating action to connection in the sense that as they did not believe themselves to act fully in the interests of the more-than-human natural world, they did not consider themselves fully connected to it. If the epistemology of connection proposed in chapter two is considered, a person might be connected across one or two of the psychological dimensions of connection, but if they are not holistically connected across all the dimensions, they may be less likely to sustain their action on sustainability issues. This may offer an explanation as to why participants can describe themselves as not completely connected, as they are unwilling or unable to fully act on sustainability issues. From this it may be surmised that the extent to which someone is connected across the different psychological dimensions may roughly equate to the extent to which they are able to act on sustainability issues once other factors outlined in previous paragraphs have been accounted for.

In summary, it would appear the relationship between connection and action could be understood as follows (research question 3c): Extended time and involvement forms connection across the psychological dimensions of knowing at different scales which appears to facilitate action on sustainability issues provided that other elements and structures can be satisfied. In addition, sustainability action itself provides an

experience which can further connection. In this way the relationship between connection and action can be understood as reciprocal. This would appear to affirm the relationship between experience and action postulated by research into SLEs (Tanner, 1980; Palmer, J.A. and Suggate, 1996; Chawla, 1999). Figure 6.3 depicts this relationship.

Figure 6.3 The relationship between connection and action



6.5 Conclusion

This chapter sought to understand what prevents connection from leading to action (research objective three) through addressing three research questions detailed at the beginning of this chapter. Research question 3c addressed above enquired into how the relationship between connection and sustainability action could be understood. Extended time and engagement (experience) can foster connection to the self, other people and the more-than-human natural world. Holistic connection, which is characterised by knowing across all psychological dimensions appears to be more effective in engendering and supporting sustainability action. The evidence presented in previous sections of this chapter illustrated where connected ways of knowing appeared to play a role in participants' sustainability actions, including involvement in education, LETS, attachment to place, self-awareness and reflection among other examples.

Chapter five noted that contemporary urban living and the technology and infrastructure this encompasses can pose barriers to connection. Participants described how these factors could limit their action on sustainability thus hindering their connection. Chapter six elucidated how knowing, material, time and structures frame action in everyday life, illustrating that they can both support and hinder action on sustainability issues (research question 3a). In addition to the elements and structures of everyday actions limiting how participants acted on sustainability issues, needs and

expectations such as convenience also played a role in whether they were able and/ or decided to act on connection.

In addition, this chapter elucidated temporal trends in action addressing research question 3b, noting that the configurations of elements and structures change across the life course in tandem with participants' needs and expectations. The understanding that sustainability actions can be markedly different throughout time and across a person's life course, appears to parallel the findings of chapter five which reported how connection changes across the life course. This suggests that at different times in the life course the factors preventing connection from leading to action distinctly differ.

In summary, it would appear that temporal variations in both the elements and structures of action and competing needs and expectations during the life course could hinder connection from leading to action on sustainability issues.

Chapter seven

Conclusions

Towards a holistic understanding of sustainability action

7.1 Introduction

Challenges to sustainability threaten both society and the natural world that underpins human livelihoods (Carter, 2001). Human behaviour has been identified as having a detrimental impact on climate change (IPCC, 2014), with ever-increasing resource use and consumption damaging the resilience of the planet and deepening social inequalities (Renner et al., 2015). Prior research into human behaviour and issues of sustainability encompassing both environmental and social domains has tended to focus on one specific behaviour at a fixed point in time, and/ or assumed an information-deficit theory of behaviour change (Kollmuss and Agyeman, 2002). In response to these limitations, this thesis adopted a life history approach to holistically examine the development and maintenance of sustainability action across the life course. In doing so, it integrated associated concepts from the educational (Kolb, 1984; Daloz et al., 1996; Mezirow, 2000; Sterling, 2011), philosophical (Næss, 1985, 1989; Lehrer, 2000) psychological (Schultz, 2002), sociological (Shove et al., 2012) and social anthropological (Bateson, 1972; Ingold, 2000) literatures to explore and propose a conceptual model (Figure 2.9) that was refined during the course of this study.

This final chapter evaluates the extent to which the aim, three research objectives and nine research questions proposed in chapter one (Table 1.1) have been met. The chapter begins by evaluating each research objective in turn before evaluating this thesis' overall contribution to scholarly knowledge (7.2). Section 7.3 delineates the limitations of the study and the following section outlines its methodological contributions (7.4). The implications for policy (7.5) and avenues for future research are also identified (7.6). Ultimately, this thesis elucidates the complex interactions between

experience, knowing and connection which engender, maintain and bound sustainability action.

7.2 Contributions to knowledge

This section evaluates the contribution of this study to scholarly knowledge. The proceeding sections elucidate to what extent each research objective has been met, outlining the study's contribution to knowledge and explaining how the findings relate to the overall aim of the thesis. The section concludes by establishing that the overall contribution of this study is the provision of an integrated model for understanding the interrelationships between experience, connection and sustainability action across the life course. Additionally, the integral role that reflection plays in sustainability action, and the recognition of temporal variation, which has previously been under-researched, is also recognised.

7.2.1 Research objective one

To understand how experience influences the understanding of sustainability issues

The role experience plays in understanding and acting on sustainability issues is contested. While learning and psychological theories place emphasis on the building and transformation of knowledge (Kolb, 1984; Mezirow, 2000), values, choice and goals (Stern, P.C., 2000; Steg and Vlek, 2009) and the multifaceted dimensions of connection (Schultz, 2002; Tam, 2013); sociological theories of practice emphasise how understanding and action are bound up in the elements and structures of daily life (Shove et al., 2012). Chapter two outlined a number of approaches adopted by previous research in conceptualising the relationships between experience, knowing, connection and action from environmental education, environmental psychology and social practice theory.

In order to develop an appropriate method to study sustainability action across the life course, this research examined previous enquiry into significant life experiences (SLEs) and lives of commitment. The life history method adopted by Daloz et al. (1996) and the structured interview approach undertaken by Chawla (1999) were influential in the formulation of the approach to addressing this thesis' aim and objectives.

Additionally, Daloz et al. (1996) and Chawla (1999) along with more recent research (Hards, 2012; Howell, 2013) identify a link between interest and action in both social and environmental issues; vindicating the approach of this study to draw comparative insight from previous research into social and environmental interest and action.

Chawla's (1999) research conducted within the field of environmental education linked SLEs with action on environmental issues (Tanner, 1980; Palmer, J.A. and Suggate, 1996). This body of research was criticised for a number of reasons including its sampling strategy (Dillon et al., 1999), being overly descriptive (Gough, S., 1999), self-referential (Dillon et al., 1999) and adopting simplistic conceptualisations of experience (Gough, A., 1999; Gough, S., 1999) and action (Gough, N., 1999). Chapters two and three sought to address these theoretical and methodological criticisms, using these deliberations to inform the design and analysis of this study.

Chapter four began providing thick descriptions (Geertz, 1993; Maxwell and Mittapalli, 2008) of the participants' life experiences, combining their testimony with descriptions of the contexts which surrounded the experiences they described. The purpose of this was to give priority to the participants' voices and illustrate the diversity of experiences which they considered to be influential in shaping their thought and action on sustainability issues. These thick descriptions were used to inform discussion which sought to address research objective one and its associated questions.

Chapter four broadly confirmed the findings of previous research (research question 1a) and furthered understanding of the conditions that facilitate these experiences (research question 1b) than previously had been outlined in much of the prior, often highly descriptive research (Tanner, 1980; Palmer, J.A. and Suggate, 1996). First-hand experience in environments and with other people appeared significant in creating and transforming understanding of sustainability issues, thereby supporting the findings of previous research (Tanner, 1980; Daloz et al., 1996; Palmer, J.A. and Suggate, 1996; Chawla, 1999). However, the application of learning theory (Kolb, 1984; Mezirow, 2000) to the participants accounts' in tandem with a recognition of the philosophical (Lehrer, 2000) and psychological (Schultz, 2002) dimensions of knowing (outlined in chapter two), which occur at the interface of the organism and environment (Bateson,

1972; Ingold, 2000), highlighted the ways in which particular experiences create and transform different ways of knowing on sustainability. This study identified that experiences that created knowing across the psychological dimensions had a propensity to form and strengthen connection with the self, other people and the more-than-human natural world, and contributed towards developing an ecological sense of self (Næss, 1985). Later sections in this chapter discuss these findings with regards to the experience of nature connection and its relationship to action in greater depth.

Additionally, while previous research into SLEs had merely described the role of other people as important (Tanner, 1980; Palmer, J.A. and Suggate, 1996), this study extended the understanding of the significant role other people play on a person's perception and articulation of sustainability issues during the life course. Family members, friends, teachers and cohabiting partners (among others) were shown to provide crucial (emotional) support and/ or mentoring which helped develop participants' understanding of sustainability issues and supported them in action they undertook.

The final section in chapter four evaluated the extent to which transformative learning theory could conceptualise the participants' life history accounts (research question 1c). Transformative learning theory is a useful lens for examining changes in knowing, particularly connection, across the life course. The provision of a biographical sequence of events from life history interview enables the study of incremental transformations in understanding and action across the life course. In addition, it was illustrated that when transformations strengthen connection to other people or to the more-than-human natural world, the participants also appeared to articulate a stronger connection to their self. This is unsurprising as transformative learning requires reflection and is developmental in the sense that a person moves to a more dependable understanding of their self and the world (Mezirow, 2000). Nevertheless, other researchers have identified this reflective process to be a commonality of understanding and action on sustainability issues (Bell and Morse, 2005; Darnton, 2008a; Lucas, Brooks, Darnton and Jones, 2008; Reid et al., 2011).

Ultimately, this study has explored the role of experience in creating and changing knowing on sustainability. While experience is complex, with a number of factors and conditions influencing how it forms understanding, experience that creates knowing across psychological dimensions appeared to be more influential in forming connection and prompting action on sustainability.

7.2.2 Research objective two

To understand how nature connection is experienced

Nature connection has enjoyed much attention in the mainstream public (Louv, 2011; Griffiths, 2013), academic (Schultz, 2002; Brügger et al., 2011; Tam, 2013) and policy (DEFRA, 2011; Moss, 2012; RSPB, 2013) presses where it has been identified as instrumental in engendering and maintaining sustainability action. In order to understand what engenders, maintains and bounds sustainability action across the life course, it is important to develop a comprehensive understanding of nature connection. Chapter two, which reviews the discourse on nature connection illustrated how it paralleled discussions into SLEs (Tanner, 1980; Peterson and Hungerford, 1981; Chawla and Cushing, 2007) and environmental behaviour (Finger, 1994; Stern, P.C., 2000). This suggested relationships between these bodies of literature, granting scope for their incorporation to address the overall aim of this thesis later in this chapter.

Research in environmental psychology (Bragg, R. et al., 2013) predominantly informs policy interest in nature connection; hence policy is predominantly interested in quantitatively measuring and unilaterally raising connection (DEFRA, 2011). However, whilst reference was made (in part) to the conditions that result in particular values and specific environmental behaviours that result from them (Brügger et al., 2011; Tam, 2013), contemporary environmental psychology and policy approaches pay little attention to the accounts of how experience forms and sustains nature connection from ecopsychology (Roszak et al., 1995; Key and Kerr, 2011a). This thesis sought to redress this, by performing a descriptive quantitative and detailed qualitative analysis of how the study participants experienced nature connection.

Chapter five juxtaposed participants' narratives of nature connection against inclusion with nature in self (INS) scores to understand how nature connection is

experienced (research objective two). The chapter began by evaluating how participants described nature connection (research question 2a). The main finding that arose from this section was that connection described holistically across the psychological domains of knowing appeared more likely to be associated with higher actions matrix scores and hence greater action on sustainability issues. Although prior research in environmental psychology has placed emphasis on the cognitive (Schultz, 2002) and affective (Pooley and O'Connor, 2000; Cheng and Monroe, 2012) dimensions of knowing respectively, future discourse on nature connection should recognise and account for their interdependence.

In addition, the ubiquitous role of reflection in strengthening connection to the more-than-human natural world and hence developing a person towards an ecological conception of self (Næss, 1985) was also noted. The significance of the role of reflection in influencing knowing and action on sustainability issues is returned to in the following section.

Chapter five also sought to elucidate the barriers participants described to nature connection (research question 2b). Participants described the limitations and challenges for both creating nature connection and inspiring sustainability action, associating them with the practices and constraints of contemporary urban life. This suggests that the relationship between nature connection and sustainability action is reciprocal, with sustainability action through the process of experiential learning engendering the behavioural dimension of knowing on connection. Future research and policy approaches should take into account that sustainability action itself can increase connection and is not just driven by it.

The penultimate section in chapter five sought to illustrate the utility of the life history method in improving the understanding of nature connection (research question 2c). The life history method's elicitation of qualitative descriptions of connection captured participants' nuanced descriptions of nature connection, which in some instances did not correlate with their INS scores. It is important to note these differences as contemporary research and policy approaches often emphasise the importance of

quantitative measures. However these merely provide a snapshot of limited aspects of connection at a particular point in time.

In addition, the application of the life history method to study connection across the life course contrasts the static portrayal of connection purported by most contemporary research (Brügger et al., 2011; Tam, 2013). As described previously with experience, connection as a part of knowing is constantly renegotiated by everyday experience and the ever-changing elements and structures that compose action. The life history method is able to capture sequential fluctuations in connection, elucidating its interaction with experience and sustainability action across the life course.

The discussion above has illustrated that connection is intimately involved in sustainability thought and action across the life course. Connection to nature is experienced in a number of ways, with connection that is holistically formulated across the psychological domains of knowing having a greater propensity to engender and sustain action on sustainability issues. The interdependence of nature connection to the elements and structures that constitute daily life is taken into account when formulating the overall contribution of this study to knowledge later in this chapter.

7.2.3 Research objective three

To understand what prevents connection from leading to action

Despite the importance of connection in engendering action on sustainability established by previous research and the section above, connection does not always appear to lead to action. This concern parallels the value-action gap which queries why people that hold environmental values and attitudes fail to act on them (Blake, 1999; Kollmuss and Agyeman, 2002). Therefore in order to fully understand sustainability action across the life course, it was necessary to examine what constituted action so as to elucidate what might prevent connection from being realised in action.

Chapter two established that whilst environmental psychology theories of behaviour emphasise knowing and the values and choice that this encompasses (Stern, P.C., 2000; Steg and Vlek, 2009), they treat contextual factors embedded in the world that surrounds the individual as superfluous variables, failing to recognise their integral role in action (Shove, 2010a). In contrast, sociological theories of practice aspire to

decentre the individual, instead focusing on the action in question (Stern, D.G., 2003; Gram-Hanssen, 2010; Shove et al., 2012). Chapter two proposed the actions framework (Figure 2.8) to balance the knowing and reflective components of action prized by psychological and educational theories of action, against the role of elements and structures in constraining action emphasised by sociological theories of practice. The actions framework was applied in chapter six to address research objective three and its associated research questions.

Chapter six employed the actions framework to describe and understand sustainability action (research question 3a). The majority of the participants' discussion on sustainability action captured by the life history interviews was identified and explained with regards to the knowing element delineated in the actions framework. This may have been because the life history method is well-equipped to explore knowing and its variation over time. However, previous research has noted that reflection, which this study considers to be a component of knowing, has a significant role to play in the performance of sustainability action (Bell and Morse, 2005; Darnton, 2008a; Lucas et al., 2008; Reid et al., 2011). Hence this may also explain why participants' discussion of sustainability action focused around knowing, with this providing the most significant component of discussion in chapter six.

In contrast, it was noted that where participants described actions that were not considered sustainable, these sometimes encompassed day-to-day tasks which were habituated over time and could be described as unconscious, meaning that participants did not describe reflecting on them while they were performing them (Darnton et al., 2011). However, it was noted that some unconscious or habituated actions can be disrupted at transition points in the life course as changes in the elements and structures of action that occur at these moments in time can facilitate reflection on prior actions and/ or provide the materials, time and structures to enable new sustainability actions. Participants also described how their expectations and needs prevented them undertaking sustainability actions. Not all action requires reflection although the behavioural dimension of knowing, expressed as competence, is required to perform an action.

Nevertheless, although a significant proportion of chapter six was focused on the discussion of the knowing element of the actions framework, it clearly illustrated that knowing and the reflection it encompasses should not necessarily be privileged above the other elements and structures, as they are all integral to action. This thesis argues that earlier policy strategies that emphasise information-deficit models of behaviour change are flawed because they fail to recognise the contextual factors that constitute action; the recommendations for policymakers that follow from this are discussed later in this chapter.

Chapter six also sought to establish how and why sustainability action might change across the life course (research question 3b). This chapter illustrated that habits formed within the home environment influenced what, if any sustainability actions were undertaken. This illustrated the importance of the home environment in establishing lifelong sustainability action. However, it should be noted that home environments are subject to change and even upheaval over the life course. This indicates the value of the life history method, utilised in this thesis, in capturing such variations and upheavals, and exposing the complex social and cultural forces that shape the ways in which households are composed. On one hand, it is necessary to understand the different kinds of home environment an individual might experience throughout the stages of their life. On the other hand, it is also useful to examine the ways in which practices and presentations of family life within particular social and cultural contexts might enable or inhibit certain kinds of sustainability action. Integrating research on sustainability actions in the household could contribute to a fuller understanding of this (Hobson, 2003; Abrahamse et al., 2007; Gram-Hanssen, 2010; Reid et al., 2011).

Chapter six also outlined how transition points in the life course such as moving away from the childhood home, attending university and moving home created opportunities for habituated actions to change. Additionally, changes in the elements and structures that constitute actions such as cleaning and recycling where shown to result in markedly different performances of these actions. These findings lend support to emerging trends in research which assert the value of transition points (Thompson, S. et al., 2011; Burningham et al., 2014; Verplanken and Roy, 2014) and the temporal

reconfiguration of sustainability actions (Reid, in prep), suggesting that these should be fruitful avenues of research to pursue. Furthermore, the recognition that the elements and structures which constitute sustainability action change over time and the understanding of theses variations provides new insights towards developing a holistic understanding of sustainability action.

The penultimate section in chapter six sought to summarise the relationship between connection and action (research question 3c) to more fully understand what prevents connection from leading to action (research objective three). Experience that creates connection across the psychological dimensions of knowing has a greater propensity to engender and maintain action on sustainability issues; the relationship was depicted in Figure 6.3. As discussed previously, the relationship between connection and action is considered to be reciprocal, with action engendering the behavioural dimension of connection. However, it was also acknowledged that action depends on material, time and structure in addition to connected ways of knowing. Additionally, needs and expectations may prevent a person from acting on sustainability issues.

The recognition of the interrelationships between experience, connection and action presents an advancement on previous research that compartmentalises the study of these concepts. For example, enquiry in the field of environmental education into SLEs has tended to focus purely on formative experiences (Tanner, 1980; Palmer, J.A. and Suggate, 1996; Chawla, 1999) while environmental psychology's investigations into nature connection and environmental behaviour focused on connection (Cheng and Monroe, 2012) and behaviour respectively (Steg and Vlek, 2009), often failing to elucidate the links between these areas. In contrast, this thesis offers a holistic approach to the conceptualisation of connection and sustainability action, illustrating how the elements and structures that bound sustainability action change and interact across the life course.

Research objective three sought to understand what prevented connection from being realised as sustainability action. The discussion presented above illustrated that sustainability action occurs at the nexus of knowing, material, time and structure.

Connection can be limited by needs and expectations, in particular the desire for convenience was illustrated to hinder connection from resulting in action. Where action is not habitual, reflection plays an integral role. Again, temporal variations in the availability of elements and structures due to the passage of time and stage in the life course can both enable and hinder sustainability action. In this way the ability to act on connection can be constrained over time. The following section draws together the insight gained previously to outline the overall contribution to knowledge this thesis makes.

7.2.4 Overall contribution to knowledge

This thesis has produced a number of original contributions to the literatures on transformative learning, nature connection and sustainability action, speaking to a variety of disciplinary and theoretical frameworks. Significantly, this study produced three key insights: Firstly, this research has revealed the interrelationships between experience, connection and action to be more complex and nuanced than identified in previous research. Secondly, this study found that reflection was and is integral to the ways in which participants developed sustainability actions, thereby supporting the findings of previous research (Reid et al., 2011). Finally, the life history method was illustrated to be a unique and effective method of uncovering the dual roles of temporal variation and context in the formation and transformation of both nature connection and sustainability action across the life course.

Taken together, the findings from the objectives and research questions outlined above strengthened and elucidated the conceptual model proposed in chapter two (Figure 2.9). From these insights a detailed model linking experience, connection and sustainability action across the life course was formulated and is presented in Figure 7.1. In this model, experience was allotted the prime role in shaping thought. Furthermore the passage of time, action and its constituent elements and structures were found to play an integral role in the formulation of experience. In Figure 7.1, the complex relationships between knowing, which occurs at the interface of the mind and body (Bateson, 1972), sustainability action, and connection were also depicted. Additionally, the model recognised the role of transformation in changing knowing and connection.

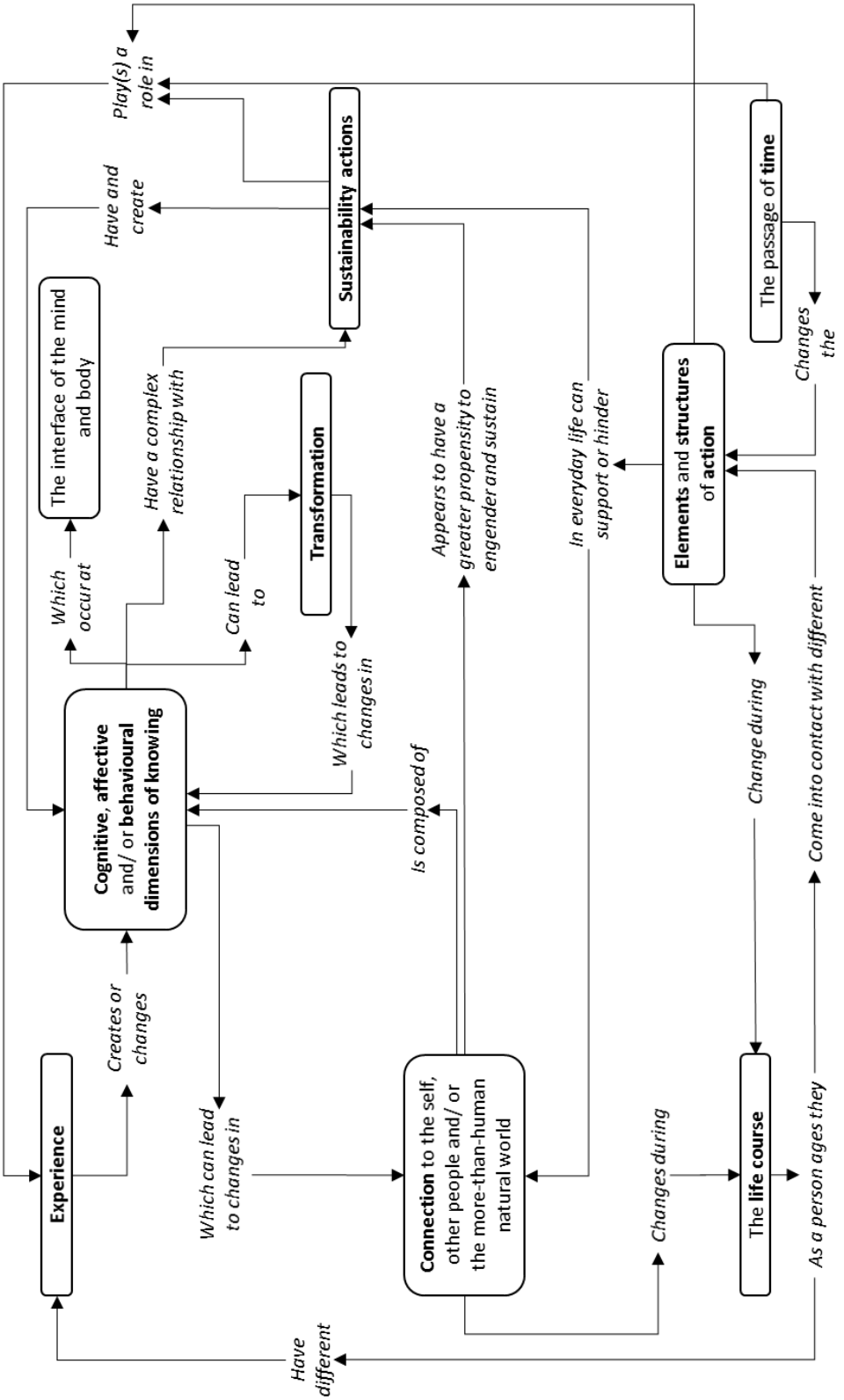


Figure 7.1 A holistic approach to understanding sustainability action across the life course

Key: Major concepts discussed in this thesis are denoted in **bold**

This study illustrated that connection as an aspect of knowing across all psychological dimensions can be created and changed by experience, which may involve transformation. Connection was also shown to have a greater propensity to engender and maintain sustainability actions. The elements and structures of action, recognised as constituting sustainability action and its dependent contextual variables such as knowing, material, time and structure, are shown to influence the aforementioned concepts in the model. Finally, it was recognised that the passage of time and its interrelationship with the life course had the propensity to vary and reconfigure the concepts in the model. In summary, this model provides an integrated understanding of what engenders, maintains and bounds sustainability action across the life course, thus meeting the overall aim of this thesis.

In addition, two further contributions to scholarly knowledge were also apparent. Reflection emerged as an integral concept in sustainability thought and action across the results and discussion chapters in this thesis. Reflection was illustrated to be involved in the creation and change of knowing on sustainability issues. Reflection also had a fundamental role to play in the transformative learning process by which a person moves to a more dependable understanding of their self and the world. Additionally, reflection was illustrated to be the common process behind different experiences which resulted in participants moving towards an ecological conception of self. Although chapter six noted that some actions can be habituated, negating conscious thought and the reflection it entails, it was also illustrated that transition points, through their disruption of the contexts in which habituated action takes place, can create opportunities for reflection and potentially reorientate action towards sustainability.

Furthermore the overall findings of the thesis, including the model described above (Figure 7.1), emphasise the importance of having an understanding of the temporal dynamism of the concepts encapsulated in the research. Prior research into SLEs (Tanner, 1980; Palmer, J.A. and Suggate, 1996) and sustainability action (Stern, P.C., 2000; Steg and Vlek, 2009) considered experience and action as endpoints, and have been criticised for their inability to account for the passage of time (Gough, A., 1999; Shove et al., 2012). This thesis illustrated that experience and sustainability action,

among the other concepts discussed, are best considered as continuous processes of interaction. When these concepts are envisaged as part of a complex web of interactions, it becomes easier to account for temporal and spatial differences as outlined throughout this thesis. The comprehension of this complexity has implications for policy discussed later in this chapter.

The paragraphs above outlined the contribution this thesis made to scholarly knowledge. The following sections outline methodological contributions, policy implications and avenues for future research. Prior to this the limitations of this study are acknowledged to provide the context for the remainder of this chapter.

7.3 Limitations

This study is limited as it primarily focuses on the lives of participants who were interested and active in addressing sustainability issues. It is acknowledged that action on sustainability issues across society is required if the challenges it poses are to be addressed (Crompton and Kasser, 2009). Hence it would appear important to study people who were not interested or active on sustainability issues. However, as argued in chapter three, the focus on recruiting people interested and active in sustainability issues facilitated the development of a detailed account of the interrelationships between experience, connection and action across the life course which resulted in a holistic understanding of what engenders and maintains sustainability action for these committed people. Additionally, future research could compare the in-depth understanding acquired in this thesis to research on people who are less active on sustainability issues.

Furthermore, while generalisation was not an aspiration of this study, it should be reaffirmed that the small number of participants precludes generalisations being made. Previous research into SLEs (Tanner, 1980; Palmer, J.A. and Suggate, 1996) and environmental behaviour (Steg and Vlek, 2009) has sought to identify and quantify aspects of these fields of enquiry. However, this was not the aim of this thesis, which instead sought to clarify the conditions and interlinkages between experience, connection and action, in order to better understand how they created, maintained and bound action on sustainability issues; therefore providing new opportunities to identify

avenues for future research. With these limitations acknowledged, the subsequent sections establish the methodological contributions, policy implications and potential for future research.

7.4 Methodological contributions

This study made several methodological contributions furthering enquiry into sustainability action across the life course encompassing the use of the life history method, and the incorporation of the actions matrix and Schultz's (2001) INS survey instrument.

It was previously noted that prior research often treated sustainability action as static, failing to acknowledge the context in which it takes place, and the life course and temporal trends it is subject to (Shove, 2010a; Reid, in prep). Building on the success of Uzzell et al.'s (2010) pilot study into the development of outdoor practices, this study devised a life history approach to investigate sustainability action. As was illustrated earlier in this chapter, the life history method described in chapter three was suited to delineating what engenders, maintains and bounds sustainability action across the life course. This is because the life history method allows for the examination of the life course in greater depth than would be possible in a closed questionnaire or structured interview; hence this approach enabled the research aim and objectives to be met. The penultimate section in this chapter suggests how aspects of the life history method adopted by this thesis can be extended to yield further insights into this area of interest.

In addition, research into nature connection and environmental behaviour in environmental psychology is often concerned with self-reporting bias, in which participants respond to research seeking to portray themselves favourably (Steg and Vlek, 2009). In contrast, engagement in extended dialogue which is part of the life history method builds rapport and trust which can strengthen the authenticity of the accounts elicited (Grbich, 2007; Merrill and West, 2009). Hence although this study employed methods such as the actions matrix and INS survey instrument, each of which on their own would be considered susceptible to the self-reporting bias, their integration into the life history method ameliorates this.

Finally, the actions matrix and INS survey instrument were employed to elicit detailed descriptions of connection and sustainability action across the life course. Parallels can be noted between the use of these additional survey methods and the contested concept of triangulation, where different methods are used to study the phenomena under investigation (Johnson, R.B., Onwuegbuzie and Turner, 2007; Gough, N., 2012). However, the actions matrix and INS survey instrument were invaluable in eliciting thick descriptions of sequential trends on connection and sustainability action across the life course. The elaborate account of sustainability action provided through the methods outlined above has several implications for policy discussed in the proceeding section.

7.5 Policy implications

The conceptual model outlined previously (Figure 7.1) highlights the importance of holistically conceptualising sustainability action, recognising the experience and knowing that engenders it, the elements and structures that support it and how it can vary throughout the life course for a variety of reasons. This illustrates that there are multiple areas in which policy can have a multifaceted impact on sustainability action, such as increasing access to the outdoors (DEFRA, 2011), designing experiential sustainability curricula (Sterling, 2001) and promoting the development of cultural representations of nature connection (Planet Earth, 2006). For example, in the previous coalition government, the Department for Environment, Food and Rural Affairs (DEFRA) (2011) made increasing children's access to the outdoors and connection to nature a priority. However, a recent report noted that family income levels constrain access to the outdoors (Harvey and Julian, 2015), with an income of at least £45 000 required to enjoy natural environments in comparison to the UK's 2014 median gross annual earnings per person of £22 044 (ONS, 2014a). When this is considered along with the current majority UK government's approach to welfare which the Institute for Fiscal Studies has argued will leave three million families an average of £1 000 worse off (Johnson, P., 2015), then aspirations for particularly impoverished children to spend more time outdoors and connect with nature are unlikely to be realised. In summary, the direct and indirect impacts of policy on people's ability to have experiences which

nurture connection to the self, other people and the more-than-human natural world should be recognised.

Furthermore, this thesis made the case for conceptualising sustainability action and the challenges it seeks to address holistically. However, trends in both UK and Scottish governments over the past five years have seen increasingly segmented, managerial approaches to addressing issues of sustainability such as climate change (Committee on Climate Change, 2014), energy (DECC, 2014) and biodiversity (Joint Nature Conservation Committee and DEFRA 2012). In the past, holistic oversight and scrutiny of the government on sustainability in the UK was provided by the independent Sustainable Development Commission (SDC). However the SDC was disbanded by the previous coalition government with devolved governments also failing to extend funding to the organisation (Bebbington and Smith, 2011; Day and Lee, 2011). This research illustrates that conceptualising sustainability action holistically is necessary and current segmented approaches such as through the UK's Committee on Climate Change only contribute to addressing part of the problem, lacking the holistic oversight needed to cohesively tackle sustainability action and challenges.

7.6 Future research

This thesis raises a number of questions for future research. This section outlines four potential areas discussing the contribution they could make to furthering scholarly knowledge. The potential of extending the conceptual model, increasing the understanding of dynamics between cohabiting partners, developing the actions matrix technique and furthering narrative analysis of the dataset are discussed below.

The conceptual model adopted (Figure 2.9) and expanded (Figure 7.1) in this thesis incorporated concepts from across the educational, psychological and sociological literatures. Nevertheless, in order to strengthen the contribution this thesis makes to understanding sustainability action across the life course, future research could integrate other fields of research into the conceptual model and evaluate the dataset in light of these. For example, the integration of research perspectives from economics, strands of which have traditionally sought to understand economic systems as a whole (Dasgupta, 2007) but also include emerging research in happiness (Nettle, 2005; Layard,

2011) and well being (Layard and Clark, 2014), may strengthen the ability of the conceptual model to offer insight into sustainability action across the life course.

In addition, a systematic evaluation of the conceptual model against the many theories of behaviour and change delineated by Darnton (2008a) and a methodical integration of systems theory (Bohm, 1994) that underlies both Bateson's (1972) and Sterling's (2011) research (discussed in chapter two) would serve to strengthen the holistic insight into sustainability action developed in this thesis. Furthermore, integration of psychological research into identity (Hogg and Vaughan, 2005; Martin et al., 2010), with a recognition of the development of deep ecology and ecopsychology into the examination of ecological identity (Thomashow, 1995; Whitmarsh and O'Neill, 2010) would further research into sustainability action across the life course.

Previous research into SLEs (Tanner, 1980; Palmer, J.A. and Suggate, 1996) had identified that other people play a formative role in engendering thought and action on sustainability issues, though it failed to clarify the nature of this. Chapter four built on this research, elucidating the experiences of cohabiting partners, identifying this as a potential area for future research. It may be asserted that research at household level may better capture the heterogeneity of human relationships and their influence on sustainability action in a bounded, physical place. However, in a world with increasing pressures on employment and livelihoods which may see increasing disruption of communities of place (UNDP, 2014), studying the relationships between shared experiences, support and sustainability action between partners may provide a fruitful avenue for future study.

It became apparent that the actions matrix which was designed to clarify the participants' involvement in sustainability issues, converged with life grid and graphing techniques employed in medical and social research (Parry et al., 1999; Richardson, Ong, Sim and Corbett, 2009; Reid, in prep). The potential for the actions matrix, when applied systematically, to build understanding of trends in sustainability action across decades and at stages in the life course was recognised in chapter six, and illustrates the potential application of this technique in future research.

Chapter four presented the results and discussion arising from the extensive coding approach described in chapter three. The analytical approach illustrated by the classification of data in chapter four can be broadly described as thematic (Grbich, 2007; Bryman, 2008). However, narrative analysis was also employed (Miller, R.L., 2000; Merrill and West, 2009) to elucidate sequences of experiences and events contained within the stories of participants with particular regards to transformation, connection and sustainability action. Further narrative analysis conducted with this rich dataset of nearly forty-seven hours of interview material (approximately 405 500 words) may reveal new insights into the temporal and sequential dimensions of experience.

7.7 Concluding remarks

This thesis has met its aim by adopting a systemic approach to study what engenders, maintains and bounds sustainability action, contributing an original, holistic perspective to an issue often compartmentalised and fragmented by research and policy agendas (Darnton, 2008b; Steg and Vlek, 2009). The life history approach to the study of sustainability action elucidated temporal trends, identifying that action is constantly reconfigured as the elements and structures which constitute it change, and as a person's needs and expectations vary during their life course. This challenges some earlier trends in research and policy which see encouraging uptake of sustainability action as a fixed end goal and which fail to pay attention to the context in which these actions are undertaken (Shove, 2010a). At times it proved challenging to work both across the several bodies of literature which comprise the conceptual model and with such a large and diverse data set. However, without adopting this holistic approach, insights into the complex interrelationships between experience, connection and action would have been missed. Furthermore, future research has the opportunity to develop and strengthen the conceptual model of sustainability action advanced in this thesis. This study illustrates that it is possible to conceptualise sustainability action holistically and that policy approaches that are able to create and sustain opportunities for experiences which encourage and nurture connection to the self, other people and the more-than-human natural world are best placed to foster the action needed to address mounting challenges to sustainability.

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Appendices

A1 Chapter two

A1.1 Table outlining definitions of ontology, epistemology and methodology from three research methods textbooks

	Burrell and Morgan (1979)	**Guba and Lincoln (1994)**	**Moses and Knutsen (2012)**
Ontology	"Assumptions of an ontological nature – assumptions which concern the very essence of the phenomena under investigation… a basic ontological question: whether the *reality* to be investigated is external to the individual… or the product of one's mind" (p.1, authors' emphasis)	"*The ontological question*. What is the form and nature of reality and, therefore, what is there that can be known about it" (p.108, authors' emphasis).	"*Ontology*… It means the study of being – the study of the basic building blocks of existence. The fundamental question in the field of ontology is: 'What is the world really made of?" (p.4, authors' emphasis)
Epistemology	"Assumptions about the grounds of knowledge – about how one might begin to understand the world and communicate this knowledge to fellow human beings. These assumptions entail ideas… about what forms of knowledge and how one can sort out what is to be regarded as *true* from… *false*" (p.1, authors' emphasis)	"*The epistemological question*. What is the nature of the relationship between the knower or would-be knower and what can be known" (p.108, authors' emphasis).	"*Epistemology*… it denotes the philosophical study of knowledge. 'What is knowledge is the basic question of epistemology" (p.4, authors' emphasis)
Methodology	"The... assumptions outlined above have direct implications of a *methodological* nature. Each one has important consequences for the way in which one attempts to investigate and obtain 'knowledge' about the social world" (p.2, authors' emphasis)	"*The methodological question*. How can the inquirer (would-be knower) go about finding out whatever he or she believes can be known" (p.108, authors' emphasis).	"*[M]ethodology*… It refers to the ways in which we acquire knowledge. 'How do we know?' is the basic question of methodology… the study of which methods are appropriate to produce reliable knowledge. This question of appropriateness covers both ontological and epistemological territory" (pp.4-5, authors' emphasis)

Texts taken from: G. Burrell and G. Morgan, *Sociological paradigms and organisational analysis: elements of the sociology of corporate life* (London: Heinemann Educational, 1979); E.G. Guba and Y.S. Lincoln, 'Competing paradigms in qualitative research' in N.K. Denzin and Y.S. Lincoln (eds.), *Handbook of qualitative research* (Thousand Oaks: Sage, 1994, pp.105-117); J.W. Moses and T.L. Knutsen, *Ways of knowing: competing methodologies in social and political research* (New York: Palgrave Macmillan, 2012).

A1.2 Table outlining the themes of three significant life experience research papers

Categories			Percentage (rank)		
Tanner (1980)	J.A. Palmer and Suggate (1996)	Chawla (1999)	Tanner[1] (1980)	J.A. Palmer and Suggate (1996)	Chawla (1999)
Outdoors	Outdoor	Experience of natural areas	78 (1)	62 (1)	77 (=1)
Parents	Influence of family[2]	Family	47 (2)	36 (5)[2]	77 (=1)
Teachers	Education	Education	31 (3)	61 (2)	38 (5)
Books	Media	Book or author	29 (4)	33 (6)	20 (9)
Other adults	Older friends and friends[2]	Friends	27 (5)	15 (9)[2]	32 (6)
Habitat alteration	Negative	Negative experiences	24 (6)	19 (8)	39 (4)
Solitude			7 (7)		
	Travel			21 (7)	
	Pets			6 (11)	
	Organisations	Organisations		39 (4)	55 (3)
	Work	Vocation		46 (3)	27 (7)
	Religion	Religion		5 (12)	15 (10)
	Having children	Concern for children		10 (10)	4 (11)
		Social justice			25 (8)

Notes: S 7. Sources, Tanner (1980, Table 1, 21), J.A. Palmer and Suggate (1996, Table 8, autobiographical data, 118) and Chawla (1999, Table 3, 19); Methods, Tanner and J.A. Palmer and Suggate postal open-response questionnaire, Chawla structured interview; Number of participants, Tanner 45, J.A. Palmer and Suggate 233, Chawla 56; 1 Percentages calculated from number of responses (Tanner, 1980, 21); 2 Older friends and other friends category was calculated by subtracting the Influence of family (36%, J.A. Palmer and Suggate, 1996, 113) from the People category (51%, J.A. Palmer and Suggate, 1996, 118), Older friends and other friends includes teachers as no data provided to distinguish between these groups.

A1.3 Table outlining the findings of selected research into significant life experiences and lives of commitment

	Tanner (1980)	J.A. Palmer and Suggate (1996)	Chawla (1999)	Daloz et al. (1996)
Upbringing	• Parents and older family members provide opportunities to go outdoors. • Family members might not have shared interests with participants but tolerated them. • A minority of participants described lack of access to the outdoors as characterising their upbringing. • Most experiences of significance appear to happen in childhood.	• Family plays a crucial role in facilitating childhood outdoor experiences. • The influence of family is roughly equal across all age groups in this study.	• "Chance fortunes of birth" (17) • Childhood is considered the foundation for nature experience and care and social justice. • Natural places visited regularly in childhood make a person more at ease with nature. • Family is the joint-first most formative influence (77%). • Family role models are important, especially in childhood. • Religious beliefs from upbringing become important in hindsight as participants become older.	• Parents and other adults provide a nurturing environment. • Family is not necessarily wealthy but able to provide support. • Parents are an important influence that appears to increase as a person ages. • Parent approval is crucial, especially when a person's life differs to that of their parents.

	Tanner (1980)	J.A. Palmer and Suggate (1996)	Chawla (1999)	Daloz et al. (1996)
Education	• Teachers shared their interest in the natural world or supported the participants interests.	• Education was mentioned by over 60% of participants. • Influence of teachers is important for conveying enthusiasm, concern and knowledge.	• Education was the fifth-most mentioned source of concern.	• Educational environments develop interest and action on social issues. • School provides a safe space to engage with people who are significantly different to one's self. • Teachers have a significant role to play in engaging interest on social issues.

	Tanner (1980)	J.A. Palmer and Suggate (1996)	Chawla (1999)	Daloz et al. (1996)
Significant others	• Teachers and parents discussed in depth. • The influence of other people is described as "diverse" (22).	• Family, friends and teachers play a significant role.	• Other people play a significant role, family when younger and friends and interest groups when older. • Friends can encourage people to join environmental organisations. • People often look for other, likeminded people. • Concern for children and grandchildren can engender environmental action.	• Mentors enable the development of self-reflection, providing opportunities for action through example. • Relationships with other people are integral to developing and sustaining social commitment.

	Tanner (1980)	J.A. Palmer and Suggate (1996)	Chawla (1999)	Daloz et al. (1996)
Activities and employment	• Positive experiences of "pristine environments" (23) predominantly in childhood were the most formative influence. • Habitat destruction through commercial development was noted as an influence. • Overseas travel can also foster environmental action.	• "Childhood experience of countryside and nature" (119) were recorded as most formative. • Childhood experiences of the outdoors were more formative for older participants. • Older participants were interested in natural history whereas younger participants were interested in conservation activities. • Work more influential in older participants as they have spent longer in work.	• Childhood experiences of outdoor environments was stated to be most formative influence. • Volunteering and membership of organisations was influential in adulthood. • Work can create and develop environmental interests.	• About 75% of participants travelled extensively in young adulthood, granting them opportunities to engage service and cross-cultural experiences.

	Tanner (1980)	J.A. Palmer and Suggate (1996)	Chawla (1999)	Daloz et al. (1996)
Media and society	• During childhood some participants found books to be influential.	• Influence of media including television and books greater on younger people. • Experiences of environmental degradation proved formative.	• The influence of books with environmental themes was noted. • Exposure to poverty also proved to be significant.	• Participants described being compassionate to the suffering of others, not tuning it out. • Participants believe in 'the great work', something bigger than their self. • The participants disagree with what they perceive to be society's focus on individualism. • Research note the decline of physical commons has been in part driven by the rise of technology. They consider this to signify increased fragmentation and loss of common identity.

	Tanner (1980)	J.A. Palmer and Suggate (1996)	Chawla (1999)	Daloz et al. (1996)
Other notes	• Study concludes that "love" (23) is a pre-requisite for action.	• Broad similarities between this UK study and Tanner's (1980) US study. • Age should be taken into account when looking for formative experiences. • Decade between Tanner (1980) and this study has seen an increase in awareness of environmental degradation.	• 25% of participants outline also holding strong social justice concerns.	• Relationships with persons of significant difference were described. • Participants recognise the complexity of the world. • Participants have an awareness of how their work relates to the bigger picture. • Participants do not practice othering. • Participants believe in the importance of being an example to others through living a normal life to avoid being dismissed as a saint. • Participants recognise the future comes about through working with others to create a shared vision.

A1.4 Table outlining selected measures of nature connection

Concept/ measure	Description	Dimension(s)	Predicts
Emotional affinity with nature (Kals et al., 1999)	The extent of the emotional feelings people have for nature, including a sense of oneness.	Affective	• Personal ecological behaviour • Support for environmental movements
Inclusion of nature in self (Schultz, 2001)	The extent that people include the more-than-human natural world in their conception of self.	Cognitive	• Concern for the biosphere • Environmental attitudes and behaviours
Environmental identity (Clayton, 2003)	The sense of connection people have to the more-than-human natural world, including the way they perceive and act towards it.	Multidimensional	• Ecocentric attitudes • Negative relationship to environmental apathy
Connectedness to nature (Mayer and Frantz, 2004)	The extent to which people feel connection and belonging with the natural world.	Affective	• Environmental behaviour (identity and action) • Life satisfaction (subjective well being)
Commitment to nature (Davis, Green and Reed, 2009)	The extent to which people recognise the interdependency of human and natural well being.	Affective	• Ecological behaviour • Intention to help with local environmental causes
Nature relatedness (Nisbet et al., 2009)	The extent to which people identify with nature, are familiar with it and desire to spend time in it.	Multidimensional	• Love for animals • Membership of environmental organisations • Purchase and use of 'green' products • Number of indicators of well being
Connection to nature (Cheng and Monroe, 2012)	The extent of emotional attitude to the environment.	Affective	• Environmentally friendly practices

Table contents selected and tabulated from: K.-P. Tam, 'Concepts and Measures Related to Connection to Nature: Similarities and Differences', *Journal of Environmental Psychology* (New York: Elsevier, 2013, 64-78).

Additional content adapted from: J.C.-H. Cheng and M.C. Monroe, 'Connection to Nature: Children's Affective Attitude toward Nature', *Environment and Behavior* (Thousand Oaks: Sage, 2012, 31-49).

A2 Chapter three

A2.1 Ethical approval letters

University of St Andrews

University Teaching and Research Ethics Committee
School Of Geography And Geosciences

9th February 2012
Alexander James Gnanapragasam
Geography and Geosciences

Ethics Reference No: *Please quote this ref on all correspondence*	**GG8403**
Project Title:	Assessing the effectiveness of outdoor experience to deliver transformative learning for sustainability
Researchers Name(s):	Alexander James Gnanapragasam
Supervisor(s):	[redacted] and [redacted]

Thank you for submitting your application which was considered by the Geography and Geosciences School Ethics Committee. The following documents were reviewed:

1.	Ethical Application Form	30th January 2012
2.	Participant Information Sheet (Questionnaire)	30th January 2012
3.	Online Participant Consent Form (Coded Data-Questionnaire)	30th January 2012
4.	Participant Information Sheet (Interview)	30th January 2012
5.	Participant Consent Form (Coded Data- Interview)	30th January 2012
6.	Participant Information Sheet (Focus Group)	30th January 2012
7.	Participant Consent Form (Coded Data- Focus Group)	30th January 2012
8.	Letter to John Muir Trust	30th January 2012

The University Teaching and Research Ethics Committee (UTREC) approves this study from an ethical point of view. Please note that where approval is given by a School Ethics Committee that committee is part of UTREC and is delegated to act for UTREC.

Approval is given for three years. Projects, which have not commenced within two years of original approval, must be re-submitted to your School Ethics Committee.

You must inform your School Ethics Committee when the research has been completed. If you are unable to complete your research within the 3 three year validation period, you will be required to write to your School Ethics Committee and to UTREC (where approval was given by UTREC) to request an extension or you will need to re-apply.

Any serious adverse events or significant change which occurs in connection with this study and/or which may alter its ethical consideration, must be reported immediately to the School Ethics Committee, and an Ethical Amendment Form submitted where appropriate.

Approval is given on the understanding that the 'Guidelines for Ethical Research Practice' (http://www.st-andrews.ac.uk/media/UTRECguidelines%20Feb%2008.pdf) are adhered to.

Yours sincerely
[redacted]
Convenor of the School Ethics Committee

UTREC School of Geography and Geosciences Convenor, Irvine Building, North Street, St Andrews, KY16 9AL
Email: [email address] Tel: [phone number]

University of St Andrews

University Teaching and Research Ethics Committee
School Of Geography And Geosciences

29th September 2015
Alexander James Gnanapragasam
Geography and Geosciences

Ethics Reference No: *Please quote this ref on all correspondence*	**GG11767**
Project Title:	Assessing the effectiveness of outdoor experience to deliver transformative learning for sustainability
Researchers Name(s):	Alexander James Gnanapragasam
Supervisor(s):	[redacted] and [redacted]

Thank you for submitting your application which was considered by the Geography and Geosciences School Ethics Committee. The following documents were reviewed:

1.	Ethical Application Form	29th September 2015
2.	Participant Information Sheet	29th September 2015
3.	Consent Form	29th September 2015
4.	Letter to John Muir Trust	29th September 2015

The University Teaching and Research Ethics Committee (UTREC) approves this study from an ethical point of view. Please note that where approval is given by a School Ethics Committee that committee is part of UTREC and is delegated to act for UTREC.

Approval is given for three years. Projects, which have not commenced within two years of original approval, must be re-submitted to your School Ethics Committee.

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Any serious adverse events or significant change which occurs in connection with this study and/or which may alter its ethical consideration, must be reported immediately to the School Ethics Committee, and an Ethical Amendment Form submitted where appropriate.

Approval is given on the understanding that the 'Guidelines for Ethical Research Practice' (http://www.st-andrews.ac.uk/media/UTRECguidelines%20Feb%2008.pdf) are adhered to.

Yours sincerely
[redacted]
Convenor of the School Ethics Committee

A2.2 Letter of intent to the John Muir Trust

University of St Andrews

School Of Geography And Geosciences

Irvine Building
University of St Andrews
North Street
Fife
KY16 9AL

John Muir Trust
41 Commercial Street
Edinburgh
EH6 6JD

25th February 2012

Dear [redacted]

PhD Research with the John Muir Trust

Further to our previous communications I am writing to confirm the details of the project that I wish to undertake with the John Muir Trust.

I am a PhD Candidate in the Sustainable Development Programme at the University of St Andrews. My project involves examining the interaction between outdoor experiences and value and attitude construction and behaviour. Participants will be invited to complete a questionnaire and will then be able to opt-in to take part in an interview and/or focus group.

If it is suitable to you, I would like to carry out the study in the New Year. To initially distribute the questionnaire, I would appreciate it if you could please send a webpage link and the Participant Information Sheet to adults who have completed the John Muir Award. It would then be up to them to decide if they wanted to participate in the questionnaire and then, if they wished, opt-in to participate in an interview and/or discussion group.

The School of Geography and Geosciences Ethics Committee have approved the project and it is carried out under the supervision of [name] and [name].

I am very grateful for your help with this project and will contact you again via telephone to confirm that these arrangements are suitable. If you need any further information, I can be contacted by phone on [phone number] or by email at [email address]. You can also contact my supervisors [name] and [name] at [email address], [phone number] and [email address], [phone number] respectively.

Yours sincerely

Alexander James Gnanapragasam

A2.3 Invitations to John Muir Trust members to participate

A2.3.1 John Muir Award e-bulletin 15th April 2012

Request for participants - A study into the interaction between outdoor experience, values and behaviour

John Muir Award participant Alex Gnanapragasam is a PhD Candidate at the University of St Andrews undertaking research into how experience in the outdoors affects a person's values and behaviours:

"I am particularly interested in how people develop values and behaviours that lead them to aspire to build a just and fair society (pro-societal), and to care for and conserve our planet and its resources (environmental). If you are over 18 years of age and have completed a John Muir Award in the last twelve months, you are invited to complete a short questionnaire on your most recent John Muir Award experience and your engagement in environmental and pro-societal behaviours."

If you are interested in contributing to this study please contact Alex before Monday 30th April 2012 at [email address].

Source: Email communication with John Muir Award Manager

Date: 28 Mar. 2012

A2.3.2 John Muir Award News Autumn 2012, p.3

Alex Gnanapragasam, St Andrews PhD study - 'A life history study into behaviours, values and the outdoors'. Leaders and participants (over 18) who have achieved their John Muir Award are invited to contact Alex [email address] if interested in participating in his study. First step is a 15 minute online questionnaire; second optional step is a 1:1 interview with Alex lasting approximately 1 hour

Available at: http://issuu.com/johnmuirtrust/docs/jma-newsletter-autumn12-issuu

Last accessed: 1 Nov. 2015

A2.3.3 John Muir Award Gatherings review, 2012-2013

Glasgow Botanic Gardens - Friday 5th October

Alex Gnanapragasam presentation, A life history study into behaviours, values and the outdoors

Adult John Muir Award leaders and participants who have achieved their John Muir Award are invited to contact Alex ([email address]) if interested in participating in his study. First step is a 15 minute online questionnaire; second optional step is a 1:1 interview with Alex lasting between 1-2 hours.

Available at: http://preview.jmt.org/jmaward-gatherings-2012.asp

Last accessed: 1 Nov. 2015

A2.4 John Muir Award Gathering Presentation, 5th October 2012

University of St Andrews

A life history study into behaviours, values and the outdoors

Alex Gnanapragasam

PhD Candidate, University of St Andrews

University of St Andrews

Alex Gnanapragasam 5th October 2012 Slide 2

University of St Andrews

Outline

- Aim
- Study design
- Olivia's story
- Participation and recruitment
- Questions?

Alex Gnanapragasam 5th October 2012 Slide 3

University of St Andrews

Aim

- Explore the relationship between
  - Life experience, in particularly that which takes place in the outdoors
  - The values people express
  - The behaviours people say they undertake
- With a view to informing strategies for public education

Alex Gnanapragasam 5th October 2012 Slide 4

University of St Andrews

Study design

- Life history interviews
  - Captures the complexity of real life
  - Uncovers the context in which lives take place
  - Participant stories are co-authored with the researcher
- Sample
  - 4 groups of about 10 participants

Alex Gnanapragasam 5th October 2012 Slide 5

University of St Andrews

Olivia's story

- Early life
  - Small family antipodean farm
  - Trained and worked as an accountant
  - Moved to the UK to undertake doctoral studies
- Turning point
  - Early-twenties, Outward Bound course
- Values and behaviours
  - Values, pre-existing, Outward Bound gave confidence to act on them
  - Behaviours, context specific and vary over the life course
- John Muir Award experience
  - Encouraged to see places in different light and to undertake experiences Olivia would not normally do herself

Alex Gnanapragasam 5th October 2012 Slide 6

University of St Andrews

Participation and recruitment

- Completion of an online questionnaire taking approximately 15 minutes
- Completion of a life history interview lasting approximately 1.5-2 hours
- Contact me at if you are interested in participating in my study

Alex Gnanapragasam 5th October 2012 Slide 7

University of St Andrews

Thank you… any questions?

Alex Gnanapragasam

Alex Gnanapragasam 5th October 2012 Slide 8

A2.5 John Muir Award, online questionnaire, participant information sheet

A study into the interaction between outdoor experience, values and behaviour in relation to the environment

Alex Gnanapragasam, PhD Candidate, [email address]

School of Geography and Geosciences, University of St Andrews

This information sheet is split into two parts. The first part gives you information about the study and the second part provides detailed information on participation as required by the University of St Andrews.

Part 1, study outline

What is the study about?

This study looks at how experience over the life course can affect values and behaviours.

This research focuses on values and behaviours that relate to a just and fair society (pro-societal) and those that consider the conservation and enrichment of our planet, its constituent life, ecosystems and resources (pro-environmental).

This study seeks to examine what factors are responsible for the development and transformation of the above values and outline any role experience in the outdoors may play in this.

This research is being conducted as part of a PhD Thesis in the School of Geography and Geosciences at the University of St Andrews.

Why have you been contacted to take part in the study?

You have been invited to take part because you have recently achieved a John Muir Award. You are being approached because your recent experience in the outdoors provides a focusing event from which to make comparisons of your life experiences in the outdoors.

What would you be required to do?

You will be invited to complete an online questionnaire outlining your social and environmental behaviours and reporting on your recent John Muir Award experience. The questionnaire should take around 15 minutes to complete.

Prior to undertaking the online questionnaire it may be useful for you review photographs, recordings, journals and/or objects (stones, shells etc.) that you acquired while undertaking your most recent John Muir Award.

Once you begin the questionnaire you can save your progress should you wish to pause completing it and come back to it later by clicking the `Save and continue questionnaire later' button at the top of each page.

When you have completed the questionnaire you can opt to participate further in the study by taking part in an interview. You will be able to express your interest in this by ticking a box at the end of the questionnaire and providing the researcher with your contact details.

Part 2, University protocols on participation

Do you have to take part?

This Information Sheet has been written to help you decide if you would like to take part. It is up to you and you alone whether or not to take part. If you do decide to take part you will be free to withdraw at any time without providing a reason.

Will my participation be Anonymous and Confidential?

Your participation in the questionnaire stage of this study will be kept confidential to the researcher. If you choose to participate in further stages of the research, only the researcher will be able to identify which participant provided which data, as this will enable him to link data provided in later stages to that provided in the questionnaire. Once all stages of the data collection are complete, the researcher will remove personal identifiers (Participant's name and contact details) from the data. This anonymous data will be retained by the researcher.

When the results of this study are written up for inclusion in the PhD thesis and other publications, your data will not be personally identifiable. Furthermore the John Muir Trust will not be informed of who has and has not accepted their invitation to take part in this study.

Storage and Destruction of Data Collected

The electronic data collected from this questionnaire will be stored on a computer system that has a strong alpha-numeric code as its password. Once all stages of the research are complete, personal identifies will be removed from the dataset.

What will happen to the results of the research study?

The results will be finalised in 2013 and written up as part of the researcher's PhD Thesis. Anonymised data may also be used in the writing and submission of academic papers and other publications. The John Muir Trust will be advised of the results of the research and will have the opportunity to use the anonymised data. However the John Muir Trust will not be given access to any data that contains personal identifiers.

Questions

If you have any questions about this study please do not hesitate to get in contact with the researcher using the contact details provided below.

Consent and Approval

This research proposal has been scrutinised and been granted Ethical Approval through the University ethical approval process.

What should I do if I have concerns about this study?

In the first instance, please contact the researcher using the details below. If you do not feel it would be appropriate to contact the researcher, you may wish to contact their supervisors. Otherwise if you wish to raise a formal concern, please follow the procedure outlined by the University Teaching and Research Ethical Committee here http://www.st-andrews.ac.uk/utrec/complaints/

Contact Details

Researcher	Alex Gnanapragasam	[email address]	[phone number]
Supervisors	[name]	[email address]	[phone number]
	[name]	[email address]	[phone number]

A2.6 John Muir Award, online questionnaire

Online participant consent form

Project outline

The aim of this project is to understand how outdoor experiences interact with the formation and change of values, attitudes and behaviours with regards to societal and environmental issues.

You are invited to complete a questionnaire describing your societal and environmental behaviours and your most recent John Muir Award experiences. You are also offered the opportunity to participate further in the study.

Contact details

Researcher	Alex Gnanapragasam	[email address]	[phone number]
Supervisors	[name]	[email address]	[phone number]
	[name]	[email address]	[phone number]

The University of St Andrews attaches high priority to the ethical conduct of research. We therefore ask you to consider the following points before agreeing to undertake this study. By printing your name and answering the statement at the bottom of this electronic form you confirm that you are happy to participate in the study.

What is Coded Data?

The term 'Coded Data' refers to when data collected by the researcher is identifiable as belonging to a particular participant but is kept with personal identifiers removed. The researcher retains a 'key' to the coded data which allows them to connect you with your data at a later date. The un-coded data is kept confidential to the researcher. It will not be possible to identify the participant from the coded data.

Consent

The purpose of this form is to ensure that you are willing to take part in this study and to let you understand what it entails. Signing this form does not commit you to anything you do not wish to do and you are free to withdraw at any stage.

Material gathered during this research will be coded and kept confidentially by the researcher. Only the researcher will have access to it in an un-coded format. The researcher's supervisors and other parties (e.g. the John Muir Trust) will only have access to the coded data. This means the aforementioned parities will not be able to identify who provided what data. Furthermore, the John Muir Trust will not be informed by the researcher who did and did not participate in this study.

All data will be securely stored electronically in a password protected file on a user account with a password. All passwords will be strong alpha-numeric codes. The researcher will retain the material in a coded format until it has been used for the thesis and any publications that should arise from it.

Please answer each statement concerning the collection and use of the research data

I have read and understood the Information Sheet	◯ Yes	◯ No
I have been given the opportunity to contact the researcher with questions about the study	◯ Yes	◯ No
If I had questions, these have been answered satisfactorily (if you had no questions please check YES)	◯ Yes	◯ No
I understand that I can withdraw from the study (by closing the questionnaire window) at any time without having to give an explanation to the researcher	◯ Yes	◯ No

I understand that my data will be confidential and that it will be stored with personal identifiers removed by the researcher and that only the researcher will be able to decode this information as and when necessary	◯ Yes	◯ No
I agree to my data (in line with conditions outlined above and those stated in the Information Sheet) being kept by the researcher and being used for further research projects	◯ Yes	◯ No

Name: _____

I agree to take part in this study: ◯ Yes ◯ No

Part A: questions on your John Muir Award experience

1) Where did you complete your John Muir Award?

◯ England ◯ Northern Ireland ◯Scotland ◯ Wales

◯ Other: _____

2) In which year did you complete the John Muir Award? If you have completed more than one please indicate the year in which you completed your most recent one

_____

3) What John Muir Award level have you most recently completed?

◯ Discovery ◯ Explorer ◯ Conserver

4) Approximately how many days did you spend undertaking activities for the award you most recently completed? Please record a number to the nearest half day in the boxes, e.g. 3.5 Days Outdoors, 0.5 Days Indoors

Days outdoors: _____ Days indoors: _____

5) Why did you decide to undertake the John Muir Award?

_____

_____

_____

_____

6) What were the most memorable moments you had while undertaking the John Muir Award?

_____

_____

7) How did you feel at completion of the John Muir Award?

8) If you were to recommend the John Muir Award to a friend how would you describe the reasons they should do it?

9) In what way, if any, was the John Muir Award similar and/or different to your previous experiences in the outdoors?

10) What, if anything would you do differently after undertaking the John Muir Award?

Part B: questions on behaviours

11) Please record how often you have undertaken the following behaviours in the last 12 MONTHS by checking ONE circle per ROW of the table.

	I always do this as part of my normal behaviour	I most usually do this	I occasionally do this	I have done this once in the last 12 months	I would like to do this but am unable due to constraints (money, time etc.)	I never do this
I recycle some rubbish	○	○	○	○	○	○
I compost some waste	○	○	○	○	○	○
I purchase animal products produced in an ethical manner (e.g. free-range eggs)	○	○	○	○	○	○
I purchase fair trade goods	○	○	○	○	○	○
I purchase environmentally-friendly cleaning products	○	○	○	○	○	○
I purchase ethically responsible financial products (e.g. energy, insurance, banking)	○	○	○	○	○	○
I read about community, societal and/ or environmental issues	○	○	○	○	○	○
I walk, cycle, use public transport or car share	○	○	○	○	○	○
I write to political representatives (e.g. MSP, MP, MEP, Councillor etc.) on community, societal and/ or environmental issues	○	○	○	○	○	○
I am an active member (e.g. attend meetings, fundraise and volunteer time) of a group engaged with societal and/ or environmental issues	○	○	○	○	○	○
I take part in peaceful demonstrations, protests and/ or other forms of lawful activism	○	○	○	○	○	○
I donate some money to organisations engaged with societal and/ or environmental issues	○	○	○	○	○	○

Part C: questions about yourself

12) Please record your sex

◯ Female ◯ Male

13) Please record your age

◯ 18-24 ◯ 25-29 ◯ 30-39

◯ 40-49 ◯ 50-59 ◯ 60-65

◯ 65+

14) Please briefly describe your level of knowledge on societal and environmental issues recording any experience and/or qualifications you consider of relevance

15) Please briefly outline your experience in the outdoors since early childhood

Further participation

Would you like the researcher to contact you about taking part in an interview to explore the relationship between your outdoor experiences and your societal and environmental behaviours?

◯ Yes ◯ No

If you would like to participate further in the study please answer the questions below

How and when would you like the researcher to contact you?

Please indicate how the researcher should contact you and provide your contact details in the adjacent box.

◯ Email: _____

◯ Telephone: _____

◯ Other: _____

At what time of day would it be best for the researcher to contact you?

_____

_____

Thank You!

A2.7 John Muir Award, interview, participant information sheet

A study into the interaction between outdoor experience, values and behaviour in relation to the environment

Alex Gnanapragasam, PhD Candidate, [email address]

School of Geography and Geosciences, University of St Andrews

This information sheet is split into two parts. The first part gives you information about the study and the second part provides detailed information on participation as required by the University of St Andrews.

Part 1, study outline

What is the study about?

This study looks at how experience over the life course can affect values and behaviours.

This research focuses on values and behaviours that relate to a just and fair society (pro-societal) and those that consider the conservation and enrichment of our planet, its constituent life, ecosystems and resources (pro-environmental).

This study seeks to examine what factors are responsible for the development and transformation of the above values and outline any role experience in the outdoors may play in this.

This research is being conducted as part of a PhD Thesis in the School of Geography and Geosciences at the University of St Andrews.

Why have you been contacted to take part in the study?

You have been invited to take part because you have recently achieved a John Muir Award or take part in the delivery of these awards. You are being approached because your recent experience in the outdoors provides a focusing event from which to make comparisons of your life experiences in the outdoors.

What would you be required to do?

You will be invited to take part in an interview with the researcher. This interview builds on the questionnaire you previously submitted and asks you to explore your past experiences in the outdoors and the reasoning behind your social and environmental behaviours. The interview should last between 1.5 and 2 hours. The researcher will request your permission to record the interview to enable him to transcribe and analyse it at a later date.

Prior to the interview you may want to review your initial responses to Part 1 of this study. The researcher can provide these to you on request. The researcher will ask you if you wish to make any alterations to the responses provided in Part 1. If you wish to, you can do this by providing the researcher with annotated corrections.

You may also want to review materials that pertain to your experiences in the outdoors such as journals and photographs. If you keep a John Muir Award journal, this may be useful in aiding your recollection of your recent experiences. You may also want to bring along meaningful materials from your experiences outdoors that you have gathered over the course of your life. Again these may aid your memory recall in the interview.

Part 2, University protocols on participation

Do you have to take part?

This Information Sheet has been written to help you decide if you would like to take part. It is up to you and you alone whether or not to take part. If you do decide to take part you will be free to withdraw at any time without providing a reason.

Will my participation be Anonymous and Confidential?

Your participation in the interview stage of this study will be kept confidential to the researcher. Only the researcher will be able to identify which participant provided which data, as this will enable him to link data provided in the interview to that provided in the questionnaire. Once both stages of the data collection are complete, the researcher will remove personal identifiers (Participant's name and contact details) from the data. This anonymous data will be retained by the researcher.

When the results of this study are written up for inclusion in the PhD thesis and other publications, your data will not be personally identifiable. Furthermore the John Muir Trust will not be informed of who has and has not accepted their invitation to take part in this study.

Storage and Destruction of Data Collected

The digital voice recordings collected from this questionnaire will be stored on a computer system that has a strong alpha-numeric code as its password. Any paper data collected (e.g. interview notes) will be locked in a filing cabinet to which only the researcher has the key. All data will be stored in a secure location. Once all stages of the research are complete, personal identifies will be removed from the dataset.

What will happen to the results of the research study?

The results will be finalised in 2013 and written up as part of the researcher's PhD Thesis. Anonymised data may also be used in the writing and submission of academic papers and other publications. The John Muir Trust will be advised of the results of the research and will have the opportunity to use the anonymised data. However the John Muir Trust will not be given access to any data that contains personal identifiers.

Questions

If you have any questions about this study please do not hesitate to get in contact with the researcher using the contact details provided below.

Consent and Approval

This research proposal has been scrutinised and been granted Ethical Approval through the University ethical approval process.

What should I do if I have concerns about this study?

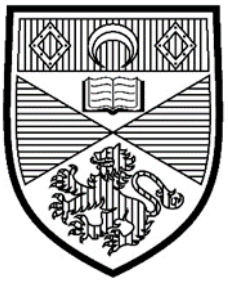
In the first instance, please contact the researcher using the details below. If you do not feel it would be appropriate to contact the researcher, you may wish to contact their supervisors. Otherwise if you wish to raise a formal concern, please follow the procedure outlined by the University Teaching and Research Ethical Committee here http://www.st-andrews.ac.uk/utrec/complaints/

Contact Details

Researcher	Alex Gnanapragasam	[email address]	[phone number]
Supervisors	[name]	[email address]	[phone number]
	[name]	[email address]	[phone number]

A2.8 Life history, participant information sheet

A study into the interaction between outdoor experience, values and behaviour in relation to the environment



Alex Gnanapragasam, PhD Candidate, [email address]

School of Geography and Geosciences, University of St Andrews

This information sheet is split into two parts. The first part gives you information about the study and the second part provides an outline of participation as required by the University of St Andrews.

Part 1, study outline

What is the study about?

This study looks at how experience over the life course can affect values and behaviours.

This research focuses on values and behaviours that relate to a just and fair society (pro-societal) and those that consider the conservation and enrichment of our planet, its constituent life, ecosystems and resources (pro-environmental).

This study seeks to examine what factors are responsible for the development and transformation of the above values and outline any role experience in the outdoors may play in this.

This research is being conducted as part of a PhD Thesis in the School of Geography and Geosciences at the University of St Andrews.

Why have you been contacted to take part in the study?

You have been invited to take part because you have been identified to the researcher as someone who could make valuable contributions because of the nature of your life experiences. The study requires participation by people with different kinds of life experiences, values and behaviours.

What would you be required to do?

You will be invited to take part in an in-depth life history interview with the researcher. The interview should last around 2 hours. The researcher will request your permission to record the interview to enable him to transcribe and analyse it at a later date. You have the option to edit the transcript produced from the interview and the researcher will contact you with regards to this after he has transcribed your interview.

Prior to taking part in the life history interview you may want to consider your recent and past experiences in pro-environmental, pro-societal and/or outdoor activities. If you have any photographs or other objects that you think may aid your memory recall, you are welcome to bring these along to the interview. You also may want to consider and recall your experiences in your early years, through education, work and your life so far.

Part 2, University protocols on participation

Do you have to take part?

This Information Sheet has been written to help you decide if you would like to take part. It is up to you and you alone whether or not to take part. If you do decide to take part you will be free to withdraw at any time without providing a reason.

Will my participation be Anonymous and Confidential?

Your participation in this life history study will be kept confidential to the researcher. Only the researcher will be able to identify which participant provided what data. Once the researcher has contacted you to finalise and agree on the interview transcript, personal identifiers (Participant's name and contact details) will be removed from the data. This anonymous data will be retained by the researcher.

When the results of this study are written up for inclusion in the PhD thesis and other publications, your data will not be personally identifiable.

Storage and Destruction of Data Collected

The digital voice recordings collected from this interview will be stored on a computer system that has a strong alpha-numeric code as its password. Any paper data collected (e.g. interview notes) will be locked in a filing cabinet to which only the researcher has the key. All data will be stored in a secure location. Once all stages of the research are complete, personal identifies will be removed from the dataset.

What will happen to the results of the research study?

The results will be finalised in 2013 and written up as part of the researcher's PhD Thesis. Anonymised data may also be used in the writing and submission of academic papers and other publications.

Questions

If you have any questions about this study please do not hesitate to get in contact with the researcher using the contact details provided below.

Consent and Approval

This research proposal has been scrutinised and been granted Ethical Approval through the University ethical approval process.

What should I do if I have concerns about this study?

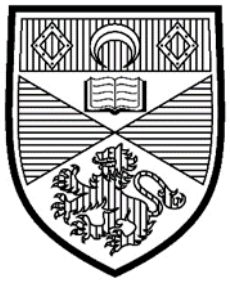
In the first instance, please contact the researcher using the details below. If you do not feel it would be appropriate to contact the researcher, you may wish to contact the supervisors. Otherwise if you wish to raise a formal concern, please follow the procedure outlined by the University Teaching and Research Ethical Committee here http://www.st-andrews.ac.uk/utrec/complaints/

Contact Details

Researcher	Alex Gnanapragasam	[email address]	[phone number]
Supervisors	[name]	[email address]	[phone number]
	[name]	[email address]	[phone number]

A2.9 Life history, participant consent form

A study into the interaction between outdoor experience, values and behaviour in relation to the environment



Alex Gnanapragasam, PhD Candidate, [email address]

School of Geography and Geosciences, University of St Andrews

Contact Details

Researcher	Alex Gnanapragasam	[email address]	[phone number]
Supervisors	[name]	[email address]	[phone number]
	[name]	[email address]	[phone number]

The University of St Andrews attaches high priority to the ethical conduct of research. We therefore ask you to consider the following points before agreeing to undertake this study. By signing this form you confirm that you are happy to participate in the study.

What is Coded Data?

The term 'Coded Data' refers to when data collected by the researcher is identifiable as belonging to a particular participant but is kept with personal identifiers removed. The researcher retains a 'key' to the coded data that allows them to connect you with your data at a later date. The un-coded data is kept confidential to the researcher. It will not be possible to identify the participant from the coded data.

Consent

The purpose of this form is to ensure that you are willing to take part in this study and to let you understand what it entails. Signing this form does not commit you to anything you do not wish to do and you are free to withdraw at any stage.

Material gathered during this research will be coded and kept confidentially by the researcher. Only the researcher will have access to it in an un-coded format. The researcher's supervisors and other parties will only have access to the coded data. This means the aforementioned parities will not be able to identify who provided what data.

All data will be securely stored electronically in a password protected file on a user account with a password. All passwords will be strong alpha-numeric codes. I will retain the material in a coded format until it has been used for my thesis and any publications that should arise from it.

Please answer each statement concerning the collection and use of the research data:

I have read and understood the information sheet.	◯ Yes	◯ No
I have been given the opportunity to ask questions about the study.	◯ Yes	◯ No
I have had my questions answered satisfactorily.	◯ Yes	◯ No
I understand that I can withdraw from the study at any time without having to give an explanation.	◯ Yes	◯ No
I understand that my data will be confidential and that it will be stored with personal identifiers removed by the researcher and that only the researcher will be able to decode this information as and when necessary.	◯ Yes	◯ No
I agree to my data (in line with conditions outlined above) being kept by the researcher and being coded and archived and used for further research projects.	◯ Yes	◯ No
I agree to take part in the study.	◯ Yes	◯ No

Part of my research involves taking tape recordings. These recordings will be kept secure and stored with no identifying factors i.e. consent forms and questionnaires. Recorded data can be a valuable resource for future studies, therefore we ask for your additional consent to maintain this data for this purpose.

I agree to being tape recorded	◯ Yes	◯ No
I agree for tape recorded material to be published as part of this research	◯ Yes	◯ No
I agree for my tape recorded material to be used in future studies	◯ Yes	◯ No

Participation in this research is completely voluntary and your consent is required before you can participate in this research.

Participant

Name in Block Capitals _____

Signature _____

Date _____

Researcher

Name in Block Capitals _____

Signature _____

Date _____

A2.10 Life history, interview schedule

Prior to the interview

- Brief description of the research and consent procedure
- Explanation of the interview
- Introduce the data recorder and turn it on
- Clarify that the consent procedure has taken place for the recorder

Brief introduction to current position

Describe what you currently do for work/ with your time

How long have you been doing it?

Part A: Early life and family

Describe your family background

Occupation of mother and father/ any siblings/ where were you brought up/ did you move around?

Describe your home environment

What was your house like/ how many rooms did it have/ **did you have a garden**/ describe your garden/ how did you spend time in the garden (flowers, vegetables, fruits etc.)/ Who did you spend time in the garden with?

Describe how you spent your free time as a child

What kind of activities did you like to do/ with who (parents, siblings, relations, friends, neighbours, on your own, etc.)

- **Did you play any imagination games (narrative, role-play)** (pretend to be another person, animal, plant?)/ who with, what was it like (do you still imagine the perspective of others)
- **Did you go to any clubs**/ who with/ how often/ from what ages
- **Did you travel or go on holiday**/ where did you go/ who with/ how often
- **Did you have any pets or other animals**/ who looked after them/ did you like them

If not covered above

Describe how the outdoors featured in your family life

What time did you spend in the outdoors growing up/ who with/ did you enjoy it/ do you feel it had an impact on you (how?)

Describe any important relationships with family members that you had while you were growing up

How, if at all have they shaped you to be the person you are? How have they shaped your interest in the outdoors?

Describe how you think family background has been influential in helping you become the person you are

Part B: Childhood education

Describe your educational background

Where did you go to school/ did you move around/ what was school like (nursery/ playgroup, primary, secondary, college etc.)?

Describe your schools

What were the buildings like, what were the grounds like, how much time did you spend outdoors during break and lunchtimes, what did you play outside, who with?

Describe the subjects you enjoyed

The subjects you enjoyed/ were good at and the ones you did not enjoy or were not good at/ did it change during childhood/ activities and after school clubs (when, how often, who with etc.)?

Describe any school trips you went on

Who did you go on them with, what did you do, how often did you go, did you enjoy them, **across levels of childhood education** (similarities and differences)

If not covered above

Describe how the outdoors featured in your childhood education

What time did you spend in the outdoors growing up/ who with/ did you enjoy it/ do you feel it had an impact on you (how?)

Describe what you wanted to be when you grew up

Did it change throughout childhood (how and why)?

Describe any important relationships with teachers or friends that you had in your education during childhood

How, if at all have they shaped you to be the person you are? How have they shaped your interest in the outdoors?

Part C: Adulthood

Describe what you did after leaving school

- Did you go to **university**, what was it like, where did you go, did you take part in any clubs and activities, did you enjoy university?
- Did you **travel** or take a **gap year**?
- What was your first **job/ work** like? Did you enjoy it? How did you end up doing it?

Describe the path that led to what you are doing now

Describe any important relationships with people that you had during adulthood

How, if at all have they shaped you to be the person you are? How have they shaped your interest in the outdoors?

Part D: Concerns and values

Prompt if required, with regards to community, environmental, society, sustainability

Please describe the issues that concern you

What issues concern you, prompt as above?

Please describe your values

What do you value, prompt as above?

Describe the <u>experiences</u> and <u>influences</u> that have led you to have these concerns and values

Which of these experiences do you consider to have been most important (why?) Are there any particular **times in your life** which were memorable? Are there any **significant people** who have shaped these concerns and values?

Describe the role you feel others such as friends and family, play in shaping a person's concerns and values

Do they foster some behaviour and discourage you from others? Can you describe any examples? Have people encouraged you to some and dissuaded you from others (how)?

Describe the role you feel wider society, play in shaping a person's concerns and values

Examples, business, culture, religion, levels of government (local and national). Do they foster some behaviours and discourage you from others? Can you describe any examples?

Describe the impact you feel time in the outdoors has on your concerns and values?

Different types of time spent outdoors doing different activities (quality), time (frequency), who with?

Part E: Behaviours (actions matrix)

Please complete this chart and explain the reasons for choosing the box you have.

Are there reasons you are unable to do things? Are there things you do not what to do? Where do you think these behaviours originate from? **Please describe the experiences and influences which led you to undertake this behaviour** (people, others, wider society etc. and **<u>what time in your life did you adopt these behaviours</u>**)

Please complete this chart again for your family during your childhood.

If you are unsure of the reasons for the behaviour, please tell me to the best of your knowledge.

If possible repeat for another period of great difference in your life.

Describe any concerns you may have with regards to issues and behaviours not represented in the chart.

Describe the role you feel others such as friends and family, play in shaping a person's behaviours

Do they foster some behaviours and discourage you from others? Can you describe any examples? Have people encouraged you to some and dissuaded you from others (how)?

Describe the role you feel wider society, play in shaping a person's behaviours

Examples, business, culture, religion, levels of government (local and national). Do they foster some behaviours and discourage you from others? Can you describe any examples?

Describe the impact you feel time in the outdoors has on your behaviours

Different types of time spent outdoors doing different activities (quality), time (frequency), who with?

Part F: John Muir Award questions *(if applicable)*

In the space below record any questions for the participant that arose from reading their initial online questionnaire

Part G: Inclusion with nature in self (survey instrument)

Please circle the picture below which best describes your relationship with the natural environment. How interconnected with nature are you and discuss why this is the case?

Why have you chosen this picture and not the others?

Debriefing

- Turn off the tape recorder and thank the participant.

A2.11 Actions matrix

	I always do this as part of my normal behaviour	I most usually do this	I occasionally do this	I have done this once in the last 12 months	I would like to do this but am unable due to constraints (money, time etc.)	I never do this
I recycle some rubbish	○	○	○	○	○	○
I compost some waste	○	○	○	○	○	○
I purchase animal products produced in an ethical manner (e.g. free-range eggs)	○	○	○	○	○	○
I purchase fair trade goods	○	○	○	○	○	○
I purchase environmentally-friendly cleaning products	○	○	○	○	○	○
I purchase ethically responsible financial products (e.g. energy, insurance, banking)	○	○	○	○	○	○
I read about community, societal and or environmental issues	○	○	○	○	○	○
I walk, cycle, use public transport or car share	○	○	○	○	○	○
I write to political representatives (e.g. MSP, MP, MEP, Councillor etc.) on community, societal and/ or environmental issues	○	○	○	○	○	○
I am an active member (e.g. attend meetings, fundraise and volunteer time) of a group engaged with societal and/ or environmental issues	○	○	○	○	○	○
I take part in peaceful demonstrations, protests and/ or other forms of lawful activism	○	○	○	○	○	○
I donate some money to organisations engaged with societal and/ or environmental issues	○	○	○	○	○	○

A2.12 Inclusion with nature in self scale (taken from Schultz, 2002, p.72)

The INS scale is scored from 1 to 7, with 1 representing separation of the self from nature and 7 representing complete interconnection with nature.

Figure redrawn from: W.P. Schultz, 'Inclusion of Nature in Self (INS) Scale' in P. Schmuck and W.P. Schultz (eds.), *Psychology of sustainable development* (New York: Springer Sceince+Buisness Media New York, 2002, p.72).

A2.13 Connectedness to nature scale (taken from Mayer and Frantz, 2004, 513)

This material is unavailable due to copyright restrictions

Text taken from: F.S. Mayer and C.M. Frantz, 'The connectedness to nature scale: a measure of individuals' feeling in community with nature', *Journal of Environmental Psychology* (London: Elsevier, 2004, 513).

A2.14 Coding scheme iterations

A2.14.1 First coding scheme

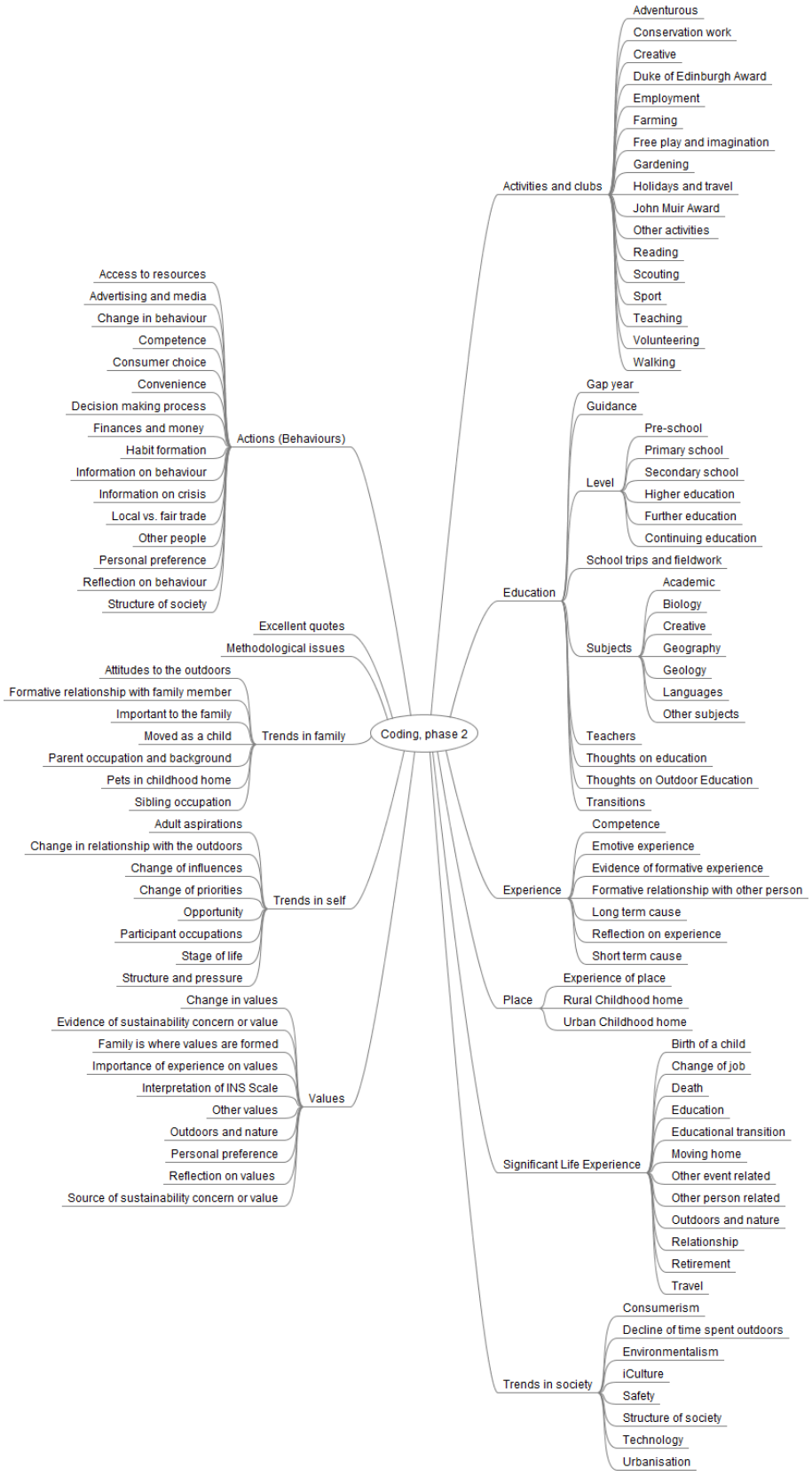
Tree node	Level 1	Level 2	Level 3
Attribute			
	(Inferred) social class		
	Childhood adult aspirations		
	Childhood family	(Magnitude) size	
	Childhood home	Urban/ rural, Y/N garden,	
	Childhood mobility	Parents' work/ divorce/ other	
	Current occupation		
	Father's occupation		
	Interpretation of INS scale		
	Mother's occupation		
	Parent(s) retired		
	Previous occupations		
	Sibling current occupation		
Education			
	Curiosity and awareness		
	Gap year	(Type) outdoor, community, voluntary, employment	
	Guidance	(Magnitude)	
	Outdoor activities	Adventurous/ field studies/ other	
	Primary school	(Magnitude) experience	Attributes, location, ethnicity, size etc.
	Secondary school	(Magnitude) experience	Attributes, location, ethnicity, size etc.
	Subject	Importance of variety	
	Subject	Importance of creative subjects	
	Subject	(Magnitude)	Reasoning
	Subject	(Magnitude) experience	
	Teachers	(Magnitude) experience	
	Tertiary	(Magnitude) experience	Attributes, location, ethnicity, size etc.
	Tertiary	Course change	
	Traditional conception of outdoor education		
	Transition	(Level)	(Magnitude) experience
	Transition	To/ from boarding school	(Magnitude) experience
	University	City / town / village	
Activities and clubs			
	Adventurous, high impact activities		
	Amateur farming		
	Awareness of local place		
	Beach		
	Benefits	Different perspectives	
	Building dens		
	Camping		
	Choice		
	Competence (ability)		
	Cycling		
	Drama		
	Duke of Edinburgh	Y/N origin of interest in outdoors	
	Exposure		
	Farming		
	Fishing		
	Free play		

Tree node	Level 1	Level 2	Level 3
Activities and clubs *continued*	Gardening	Vegetables/ flowers	
	Imagination		
	Imagination games		
	Indoors sports		
	John Muir Award	Y/N origin of interest in outdoors	
	Organised/ team sports		
	Picnic		
	Practical work	(type)	
	Purpose	Leisure, travel, work	
	Quality	e.g. Taking responsibility for one's self	
	Reading		
	Scouts/ Guides		
	Sledding		
	Swimming	Inland/ coastal	
	Swimming		
	Teenage activities		
	Walking	Attribute (with who)	
Excellent quotes			
Upbringing			
	Active in local community	Parent(s), siblings, extended	Encouraged participant Y/N
	Desire to live in rural area	Parent(s), siblings, extended	
	Exposure to sustainability issues	environmental, social, economic	Books, behaviours/practice
	Familial attitudes to the outdoors	(magnitude)	Parent(s), siblings, extended
	Family is where values are formed		
	Family relationship	(magnitude) e.g. close, distant	Parent(s), siblings, extended
	Formative familial relationships		
	Gardening	Vegetables, flowers	
	Pets	(Magnitude) experience	
	Survival, nature skills		
Trends in society over time			
	Consumerism		
	Decline of time spent outdoors		
	Exposure		
	Green options, environmentalism		
	Media	Sustainability awareness	
	Media	Promoting consumerism	
	Societal trends	Outdoor safety, iCulture	
	Structures, pressure		
	Technology		
Life course			
	(magnitude) impact of experience on values	Career	
	Change in priorities	(Cause)	
	Changes in relationship with the outdoors		
	Changes over time		
	Opportunity		
	Pressure		
	Realisation of ambitions	(Magnitude)	
	Stages of life		
	Turning point	Outdoor experience, life event	
	University		

Tree node	Level 1	Level 2	Level 3
Life course *continued*	Age and stage		
	Changing influences over time		
	Changing relationship with outdoors over time		
	Escaping conditions		
	Midlife turning point		
Behaviours			
	Consumer choice	(Magnitude) [enables/ limits]	
	Convenience	(Magnitude) [enables/ limits]	
	(Negative) enormity of the challenge		
	Change	"Seeds of change" (long-term cause)	
	Change	Short-term cause	
	Change	Other people	
	Change	Information	
	Change	Reflection	
	Change	Event	
	Change	How-to	
	Conscious decision		
	Decision making process and reasoning		
	Experience	(Type) e.g. volunteering	(Magnitude) [enables/ limits] [encourages/ dissuades]
	finances/ money	(Magnitude) [enables/ limits]	
	Gendered	(Magnitude) [enables/ limits]	
	Habit formation/ habituation		
	Information	(Magnitude) [enables/ limits]	
	Local vs. fair trade		
	Other people	(Magnitude) [enables/ limits]	
	Personal preference	(Magnitude) [enables/ limits]	
	Self	Physical, mental	(Magnitude) [enables/ limits]
	Structures		
	time	(Magnitude) [enables/ limits]	
	Tipping point		
	Values vs. behaviour		
	Work vs. life	(Magnitude) [enables/ limits]	
Learning			
	"Up a gear"/ transformation in understanding		
	Cognitive dissonance		
	Communication to others		
	Reflection	Constrained/ unconstrained	
	Reflection	Time-delay	
	Reflection	Integrating knowledge into decision making	
	Threshold concepts (knowledge and tipping points)		
	Zone of proximal development (input of others required)		
Experience			
	Childhood	Outdoor activities	
	Childhood	Inequalities and bullying	
	Emotional experience		
	Evidence of formative experience	Environmental, social, economic	
	How-to address challenges		
	Leadership		
	Long-term cause		
	Proficiency		
	Short-term cause		

Tree node	Level 1	Level 2	Level 3
Experience *continued*	Towards a movement of mind		
	Working with people		
Significant Life Experience			
	Birth of child		
	Change of job		
	Death		
	Disorientating dilemma (out of the comfort zone)		
	Educational transition		
	Moving home		
	Other event	(Time period)	
	Other person	(Time period)	(Who)
	Relationship		
	Retirement		
Values			
	Enormity of the challenge		
	Evidence of sustainability concern/value	Environmental, social, economic	
	Othering	Me vs. other, us vs. them, humans vs. nature, me vs. family	
	Source of sustainability concern/value	Environmental, social, economic	
	Values and beliefs are a luxury		
Total 13	156	70	13

A2.14.2 Second coding scheme



A2.14.3 Third coding scheme

Tree node	Explanation
Actions (Behaviours)	This code was used for responses that came from the actions matrix. Participants discussed why they were able or unable to undertake actions, the encoded text marked the reasoning behind the action. This code was also used to identify what wider effects entities, such as companies and government have on specific actions. The code 'Trends in society' was used to mark more general points about the effects of entities on broader trends in action.
Activities and clubs	This code was used to identify what activities and clubs participants described. With the exception of holidays and travel, items marked with this code were not one-off events. These events occurred regularly during at least one period of the participants' lives. This code enabled the researcher to consider patterns of activities that participants engaged in over their life course.
Education	This code encompassed all things education, including different levels of education and the transitions between them, descriptions and preferences of schools, teachers and subjects, general opinions on schooling and education, details of participants' gap years, opinions on the quality of guidance received through education, trips and activities that were part of formal education and how the outdoors may or may not have featured in education.
Excellent quotes	This code highlighted quotes that would be good to include in the thesis.
Inclusion with nature in self	This code included responses participants provided to the inclusion with nature in self survey instrument (Schultz, 2001). This code encompassed descriptions of participants' behaviour, values and life course when all these items were discussed in relation to the survey instrument. Grouping these responses enabled the researcher to examine how participants interpreted the survey instrument.
Methodological issues	This code enabled the researcher to easily identify methodological issues and include them in discussion of the strengths and limitations of this research.
Place	This code was used to highlight detailed descriptions of places provided by participants. Places included childhood homes, gardens, schools and other places lived and worked in. Material from across the life course was captured by this code.
Reflection	This code was used to highlight responses in which the participant reported detailed reflection on experiences and events.
Significant life experiences	This code was used to highlight participants' responses in which they identified a significant life experience. These experience can include a one-off event, transition in between periods of life, or sustained contact with an influential person. The experience could be described as transformative in that it results in a turning point in the participants' values, attitudes and/ or behaviour. For a response to be coded as an SLE, it must be clearly identified by the participant and NOT inferred by the researcher. This enables for comparison with previous research in environmental education which 'conservatively' coded in this fashion (Tanner, 1980). Examples included the birth of a child, education, educational transition, life-stage transition, change of job, retirement, relationship and death.
Trends in family	This code was used to group responses that document family life and included such topics as the background and occupation of the participant's parents, the interactions of the family in the childhood home, how the family moved as the participant was growing up, pets in the childhood home and the participant's relationship with parents and siblings. The code also documented the role of the family in value formation, and how attitudes and values of the outdoors may be rooted in family. This code was also used to capture how a family spent

Tree node	Explanation
	their time together and addressed broader trends in family behaviour such as their environmental impact (as oppose to discussion of specific behaviours).
Trends in self	This code grouped together participant responses that address changes in self over time. This includes items such as the participant's occupations, jobs and how they spend their time. It brought these elements together in an effort to build a picture of the participant's life course to enable construction of a narrative. Additionally this code collected adult aspirations from childhood and participants' formative relationships with people other than family, childhood friends and teachers.
Trends in society	This code brought together responses that address changes in wider society (beyond the participant and their childhood family and current family and circle of friends). Responses included, but were not limited to changes in awareness of environmental issues and the media. This code was also used to describe what participants believed to be the impact of their or other people's actions on the world. This code also addressed what participants perceived to be the role of organisations and government.
Values	The values code collates responses which examine where the participants' values originate from and what they see to challenge or support their values. There were areas of overlap where participants discuss family, experiences and society as being factors in their values. However the overriding characteristic of responses coded as values was that they pertain to the participant's stated values. Additionally the values code also captured participants' feelings of enjoyment and competence as it was surmised that this was something they ascribed value to.

A2.15 Extract from a participant proforma

Gethin

Gethin is a lecturer in an academic school at [university name]. When he is not working he spends a lot of his free time in the outdoors. He has a grown up family and currently lives with his wife.

Gethin was born and raised in northwest Wales in the United Kingdom. He has three sisters and one younger brother and shares a close relationship with them. Gethin's mother came from a nursing background, but stopped work before he was born to focus on being the homemaker, and additionally fostering and child-minding. Gethin's father was a merchant seaman radio officer who stopped going deep sea when he had a family. Gethin said his family were lower middle class and not working class because his father was an officer. Gethin states that he had a very close relationship with his father, but that his mother was a stereotypical "working class mum" (p.4, lines 34-36) with a "fist of iron".

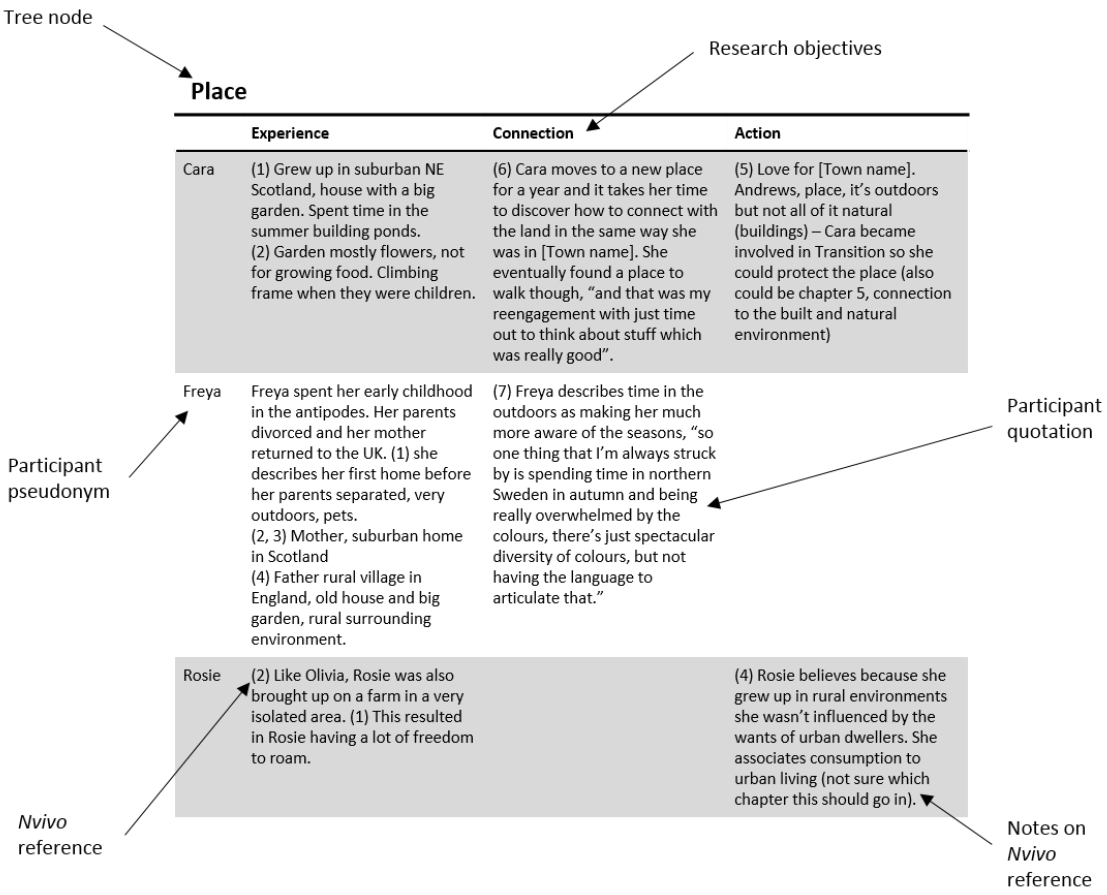
…

Gethin discusses the importance of 'societal embeddedness', he states, "If I lived in a societ where petty thievery was the norm, I would be a petty thief" (p.11 ls22-23). He then illustrates this using the example of recycling, commenting that structures and people interact to reproduce society.

A broader trend in the interview data examines how participants who are members of different generations conceptualise the outdoors. Gethin is about the median age of the sample and was able to describe this transition in his life course. Gethin begins stating that in his childhood, "it was just there when I was growing up, I didn't think of it as the outdoors" (p.4, line 5) and "I didn't construe it as the outdoors, it was just my environment" (p.4, line 10). In support of this, when asked about how the outdoors featured in his primary education, he stated it did not, "but it [the outdoors] wasn't a separate thing, it was just there, where I lived" (p.7, line 18). Gethin states that he believes this transition comes in later life from being required to spend in time indoors (p.9, line 24 – p.10, line 4). He describes his time in London in his mid-twenties as being part of the turning point, "London's urban environment is clearly not the outdoors" (p.4, lines 21-25).

Note: The … represents paragraphs omitted from the extract of this proforma to limit the reader's ability to attribute it to a participant; page and line citations denote where supporting material can be found in the interview transcript.

A2.16 Annotated example of chapter development



	Experience	Connection	Action
Cara	(1) Grew up in suburban NE Scotland, house with a big garden. Spent time in the summer building ponds. (2) Garden mostly flowers, not for growing food. Climbing frame when they were children.	(6) Cara moves to a new place for a year and it takes her time to discover how to connect with the land in the same way she was in [Town name]. She eventually found a place to walk though, "and that was my reengagement with just time out to think about stuff which was really good".	(5) Love for [Town name]. Andrews, place, it's outdoors but not all of it natural (buildings) – Cara became involved in Transition so she could protect the place (also could be chapter 5, connection to the built and natural environment)
Freya	Freya spent her early childhood in the antipodes. Her parents divorced and her mother returned to the UK. (1) she describes her first home before her parents separated, very outdoors, pets. (2, 3) Mother, suburban home in Scotland (4) Father rural village in England, old house and big garden, rural surrounding environment.	(7) Freya describes time in the outdoors as making her much more aware of the seasons, "so one thing that I'm always struck by is spending time in northern Sweden in autumn and being really overwhelmed by the colours, there's just spectacular diversity of colours, but not having the language to articulate that."	
Rosie	(2) Like Olivia, Rosie was also brought up on a farm in a very isolated area. (1) This resulted in Rosie having a lot of freedom to roam.		(4) Rosie believes because she grew up in rural environments she wasn't influenced by the wants of urban dwellers. She associates consumption to urban living (not sure which chapter this should go in).

A3 Chapter six

A3.1 Tables illustrating actions matrix data organised by participant age

A3.1.1 Composting

Participant	Age	Group(s)	INS score	0-9	10-19	20-29	30-39	40-49	50-59	60-69
Sophie	18-24	A	5	4	4	4				
Wanda	18-24	B	4	4		4				
Jean	18-24	B	7			4				
Stella	18-24	B	6			2				
Sally	25-29	A	3	2	0	0				
Mabel	25-29	A	5	4		0				
Isla	25-29	B, C	6	4		3				
Iona	25-29	A, B	7	4		4				
Cara	25-29	B	4	4		4				
Ingrid	25-29	B	5	0		2				
Alice	30-39	A	5	3		0	3			
Rory	30-39	B	7	0			2			
Harriet	30-39	B	4	3			1			
Freya	30-39	B, C	3	2			4			
Stacey	30-39	D	1	0			1			
Olivia	40-49	A, B, C	-	4		0		4		
Rosie	40-49	A, B	5	4				4		
Adam	40-49	B	6	4	0			4		
Patrick	40-49	D	7					3		
Elspeth	40-49	B, C	7	3				4		
Thomas	40-49	A	7	4				4		
Andrew	40-49	B	3	1				4		
Gethin	40-49	B	7	0				3		
Morven	40-49	C	-	0				4		
Chloe	40-49	C	4	3				4		
Dawn	50-59	C	7	4		0			4	
Anna	50-59	B	6	0					4	
Jim	50-59	A, B	6	0					4	
Matilda	50-59	C	7	4					4	
Harry	65+	A	5	0						4
Mark	65+	B	7							
Robert	65+	B	6	2						4
Rufus	65+	B, C	5				0			4

Actions matrix statement: I compost some waste.
Key to recruitment groups: A John Muir Award participants and course providers; **B** key informants active in sustainability issues; **C** participants active in education sector; **D** participants that did not identify with sustainability issues.
Key to age group matrix results: 0 never or unable to do this; **1** done this once in the last twelve months; **2** occasionally do this; **3** most usually do this; **4** always do this as part of normal behaviour; [**empty cell**] data not provided for this time period.
Notes: Olivia and Morven did not provide INS scores; Mark declined to complete the actions matrix.

A3.1.2 Environmentally-friendly cleaning

Participant	Age	Group(s)	INS score	0-9	10-19	20-29	30-39	40-49	50-59	60-69
Sophie	18-24	A	5	0	3	4				
Wanda	18-24	B	4	2		1				
Jean	18-24	B	7			4				
Stella	18-24	B	6			2				
Sally	25-29	A	3	0	0	2				
Mabel	25-29	A	5	0		4				
Isla	25-29	B, C	6	1		3				
Iona	25-29	A, B	7	1		4				
Cara	25-29	B	4	0		0				
Ingrid	25-29	B	5	2		3				
Alice	30-39	A	5	0		0	2			
Rory	30-39	B	7	0			4			
Harriet	30-39	B	4	0			4			
Freya	30-39	B, C	3	3			4			
Stacey	30-39	D	1	0			0			
Olivia	40-49	A, B, C	-	0		3		4		
Rosie	40-49	A, B	5	2				3		
Adam	40-49	B	6	0	0			2		
Patrick	40-49	D	7					0		
Elspeth	40-49	B, C	7	0				3		
Thomas	40-49	A	7	0				3		
Andrew	40-49	B	3	1				4		
Gethin	40-49	B	7	0				3		
Morven	40-49	C	-	0				4		
Chloe	40-49	C	4	2				3		
Dawn	50-59	C	7	4		4			1	
Anna	50-59	B	6	2					4	
Jim	50-59	A, B	6	0					4	
Matilda	50-59	C	7	0					4	
Harry	65+	A	5	0						2
Mark	65+	B	7							
Robert	65+	B	6	0						4
Rufus	65+	B, C	5				2			4

Actions matrix statement: I purchase environmentally-friendly cleaning products.
Key to recruitment groups: A John Muir Award participants and course providers; **B** key informants active in sustainability issues; **C** participants active in education sector; **D** participants that did not identify with sustainability issues.
Key to age group matrix results: 0 never or unable to do this; **1** done this once in the last twelve months; **2** occasionally do this; **3** most usually do this; **4** always do this as part of normal behaviour; [**empty cell**] data not provided for this time period.
Notes: Olivia and Morven did not provide INS scores; Mark declined to complete the actions matrix.

A3.1.3 Ethical produce

Participant	Age	Group(s)	INS score	0-9	10-19	20-29	30-39	40-49	50-59	60-69
Sophie	18-24	A	5	2	3	4				
Wanda	18-24	B	4	3		3				
Jean	18-24	B	7			4				
Stella	18-24	B	6			4				
Sally	25-29	A	3	2	0	3				
Mabel	25-29	A	5	3		4				
Isla	25-29	B, C	6	4		3				
Iona	25-29	A, B	7	3		3				
Cara	25-29	B	4	3		3				
Ingrid	25-29	B	5	2		4				
Alice	30-39	A	5	3		4	4			
Rory	30-39	B	7	0			4			
Harriet	30-39	B	4	2			4			
Freya	30-39	B, C	3	4			4			
Stacey	30-39	D	1	0			2			
Olivia	40-49	A, B, C	-	0		3		4		
Rosie	40-49	A, B	5	2				4		
Adam	40-49	B	6	2	0			4		
Patrick	40-49	D	7					0		
Elspeth	40-49	B, C	7	0				4		
Thomas	40-49	A	7	2				3		
Andrew	40-49	B	3	0				4		
Gethin	40-49	B	7	0				4		
Morven	40-49	C	-	0				3		
Chloe	40-49	C	4	2				3		
Dawn	50-59	C	7	4		0			4	
Anna	50-59	B	6	0					4	
Jim	50-59	A, B	6	0					3	
Matilda	50-59	C	7	0					4	
Harry	65+	A	5	0						4
Mark	65+	B	7							
Robert	65+	B	6	2						4
Rufus	65+	B, C	5				0			3

Actions matrix statement: I purchase animal products produced in an ethical manner (e.g. free-range eggs).
Key to recruitment groups: A John Muir Award participants and course providers; **B** key informants active in sustainability issues; **C** participants active in education sector; **D** participants that did not identify with sustainability issues.
Key to age group matrix results: 0 never or unable to do this; **1** done this once in the last twelve months; **2** occasionally do this; **3** most usually do this; **4** always do this as part of normal behaviour; [**empty cell**] data not provided for this time period.
Notes: Olivia and Morven did not provide INS scores; Mark declined to complete the actions matrix.

A3.1.4 Reading

Participant	Age	Group(s)	INS score	0-9	10-19	20-29	30-39	40-49	50-59	60-69
Sophie	18-24	A	5	2	4	4				
Wanda	18-24	B	4	2		4				
Jean	18-24	B	7			4				
Stella	18-24	B	6			2				
Sally	25-29	A	3	0	1	2				
Mabel	25-29	A	5	3		3				
Isla	25-29	B, C	6	3		4				
Iona	25-29	A, B	7	2		4				
Cara	25-29	B	4	1		4				
Ingrid	25-29	B	5	1		4				
Alice	30-39	A	5	3		2	4			
Rory	30-39	B	7	2			4			
Harriet	30-39	B	4	0			3			
Freya	30-39	B, C	3	4			4			
Stacey	30-39	D	1	0			4			
Olivia	40-49	A, B, C	-	0		1		4		
Rosie	40-49	A, B	5	3				4		
Adam	40-49	B	6	2	2			3		
Patrick	40-49	D	7					2		
Elspeth	40-49	B, C	7	2				4		
Thomas	40-49	A	7	4				4		
Andrew	40-49	B	3	2				4		
Gethin	40-49	B	7	1				3		
Morven	40-49	C	-	3				3		
Chloe	40-49	C	4	3				3		
Dawn	50-59	C	7	4		4			4	
Anna	50-59	B	6	0					4	
Jim	50-59	A, B	6	3					4	
Matilda	50-59	C	7	4					4	
Harry	65+	A	5	3						3
Mark	65+	B	7							
Robert	65+	B	6	2						4
Rufus	65+	B, C	5				3			4

Actions matrix statement: I read about community, societal and/ or environmental issues.
Key to recruitment groups: A John Muir Award participants and course providers; **B** key informants active in sustainability issues; **C** participants active in education sector; **D** participants that did not identify with sustainability issues.
Key to age group matrix results: 0 never or unable to do this; **1** done this once in the last twelve months; **2** occasionally do this; **3** most usually do this; **4** always do this as part of normal behaviour; [**empty cell**] data not provided for this time period.
Notes: Olivia and Morven did not provide INS scores; Mark declined to complete the actions matrix.

A3.1.5 Ethical finance

Participant	Age	Group(s)	INS score	0-9	10-19	20-29	30-39	40-49	50-59	60-69
Sophie	18-24	A	5	0	0	0				
Wanda	18-24	B	4	1		0				
Jean	18-24	B	7			0				
Stella	18-24	B	6			0				
Sally	25-29	A	3	0	0	0				
Mabel	25-29	A	5	0		4				
Isla	25-29	B, C	6	0		0				
Iona	25-29	A, B	7	0		2				
Cara	25-29	B	4	0		1				
Ingrid	25-29	B	5	0		1				
Alice	30-39	A	5	0		0	2			
Rory	30-39	B	7	0			4			
Harriet	30-39	B	4	0			3			
Freya	30-39	B, C	3	3			3			
Stacey	30-39	D	1	0			0			
Olivia	40-49	A, B, C	-	0		0		3		
Rosie	40-49	A, B	5	0				4		
Adam	40-49	B	6	0	0			3		
Patrick	40-49	D	7					0		
Elspeth	40-49	B, C	7	0				3		
Thomas	40-49	A	7	0				3		
Andrew	40-49	B	3	0				3		
Gethin	40-49	B	7	1				2		
Morven	40-49	C	-	0				0		
Chloe	40-49	C	4	0				2		
Dawn	50-59	C	7	0		3			3	
Anna	50-59	B	6	0					3	
Jim	50-59	A, B	6	0					4	
Matilda	50-59	C	7	0					4	
Harry	65+	A	5	0						2
Mark	65+	B	7							
Robert	65+	B	6	0						2
Rufus	65+	B, C	5				0			3

Actions matrix statement: I purchase ethically responsible financial products (e.g. energy, insurance, and banking).
Key to recruitment groups: A John Muir Award participants and course providers; **B** key informants active in sustainability issues; **C** participants active in education sector; **D** participants that did not identify with sustainability issues.
Key to age group matrix results: 0 never or unable to do this; **1** done this once in the last twelve months; **2** occasionally do this; **3** most usually do this; **4** always do this as part of normal behaviour; [**empty cell**] data not provided for this time period.
Notes: Olivia and Morven did not provide INS scores; Mark declined to complete the actions matrix.

A3.1.6 Demonstrating and activism

Participant	Age	Group(s)	INS score	0-9	10-19	20-29	30-39	40-49	50-59	60-69
Sophie	18-24	A	5	2	2	2				
Wanda	18-24	B	4	2		2				
Jean	18-24	B	7			2				
Stella	18-24	B	6			0				
Sally	25-29	A	3	0	1	2				
Mabel	25-29	A	5	2		3				
Isla	25-29	B, C	6	0		1				
Iona	25-29	A, B	7	1		1				
Cara	25-29	B	4	2		2				
Ingrid	25-29	B	5	0		1				
Alice	30-39	A	5	0		0	0			
Rory	30-39	B	7	0			2			
Harriet	30-39	B	4	0			1			
Freya	30-39	B, C	3	3			2			
Stacey	30-39	D	1	0			0			
Olivia	40-49	A, B, C	-	0		0		2		
Rosie	40-49	A, B	5	0				1		
Adam	40-49	B	6	3	3			4		
Patrick	40-49	D	7					0		
Elspeth	40-49	B, C	7	0				2		
Thomas	40-49	A	7	2				3		
Andrew	40-49	B	3	2				0		
Gethin	40-49	B	7	0				1		
Morven	40-49	C	-	2				0		
Chloe	40-49	C	4	2				2		
Dawn	50-59	C	7	0		4			0	
Anna	50-59	B	6	0					2	
Jim	50-59	A, B	6	0					2	
Matilda	50-59	C	7	0					2	
Harry	65+	A	5	0						0
Mark	65+	B	7							
Robert	65+	B	6	0						2
Rufus	65+	B, C	5				2			2

Actions matrix statement: I take part in peaceful demonstrations, protests and/ or other forms of lawful activism.
Key to recruitment groups: A John Muir Award participants and course providers; **B** key informants active in sustainability issues; **C** participants active in education sector; **D** participants that did not identify with sustainability issues.
Key to age group matrix results: 0 never or unable to do this; **1** done this once in the last twelve months; **2** occasionally do this; **3** most usually do this; **4** always do this as part of normal behaviour; [**empty cell**] data not provided for this time period.
Notes: Olivia and Morven did not provide INS scores; Mark declined to complete the actions matrix.

A3.1.7 Travel

Participant	Age	Group(s)	INS score	0-9	10-19	20-29	30-39	40-49	50-59	60-69
Sophie	18-24	A	5	4	4	4				
Wanda	18-24	B	4	3		4				
Jean	18-24	B	7			4				
Stella	18-24	B	6			4				
Sally	25-29	A	3	2	3	4				
Mabel	25-29	A	5	2		3				
Isla	25-29	B, C	6	3		3				
Iona	25-29	A, B	7	2		3				
Cara	25-29	B	4	2		4				
Ingrid	25-29	B	5	0		4				
Alice	30-39	A	5	3		2	2			
Rory	30-39	B	7	0			3			
Harriet	30-39	B	4	2			4			
Freya	30-39	B, C	3	3			3			
Stacey	30-39	D	1	4			4			
Olivia	40-49	A, B, C	-	0		3		1		
Rosie	40-49	A, B	5	0				3		
Adam	40-49	B	6	4	4			4		
Patrick	40-49	D	7					3		
Elspeth	40-49	B, C	7	3				3		
Thomas	40-49	A	7	3				3		
Andrew	40-49	B	3	2				3		
Gethin	40-49	B	7	3				3		
Morven	40-49	C	-	0				3		
Chloe	40-49	C	4	4				3		
Dawn	50-59	C	7	2		4			3	
Anna	50-59	B	6	4					3	
Jim	50-59	A, B	6	0					4	
Matilda	50-59	C	7	4					0	
Harry	65+	A	5	4						2
Mark	65+	B	7							
Robert	65+	B	6	2						3
Rufus	65+	B, C	5				3			4

Actions matrix statement: I walk, cycle, use public transport or car share.
Key to recruitment groups: A John Muir Award participants and course providers; **B** key informants active in sustainability issues; **C** participants active in education sector; **D** participants that did not identify with sustainability issues.
Key to age group matrix results: 0 never or unable to do this; **1** done this once in the last twelve months; **2** occasionally do this; **3** most usually do this; **4** always do this as part of normal behaviour; [**empty cell**] data not provided for this time period.
Notes: Olivia and Morven did not provide INS scores; Mark declined to complete the actions matrix.

A3.1.8 Active member of an organisation

Participant	Age	Group(s)	INS score	0-9	10-19	20-29	30-39	40-49	50-59	60-69
Sophie	18-24	A	5	1	2	2				
Wanda	18-24	B	4	3		4				
Jean	18-24	B	7			4				
Stella	18-24	B	6			4				
Sally	25-29	A	3	0	4	4				
Mabel	25-29	A	5	0		4				
Isla	25-29	B, C	6	4		2				
Iona	25-29	A, B	7	3		4				
Cara	25-29	B	4	0		3				
Ingrid	25-29	B	5	0		4				
Alice	30-39	A	5	2		0	4			
Rory	30-39	B	7	2			2			
Harriet	30-39	B	4	0			0			
Freya	30-39	B, C	3	2			3			
Stacey	30-39	D	1	4			4			
Olivia	40-49	A, B, C	-	0		0		0		
Rosie	40-49	A, B	5	0				3		
Adam	40-49	B	6	4	4			4		
Patrick	40-49	D	7					0		
Elspeth	40-49	B, C	7	3				0		
Thomas	40-49	A	7	4				3		
Andrew	40-49	B	3	0				3		
Gethin	40-49	B	7	0				0		
Morven	40-49	C	-	0				0		
Chloe	40-49	C	4	3				1		
Dawn	50-59	C	7	4		4			3	
Anna	50-59	B	6	3					3	
Jim	50-59	A, B	6	0					4	
Matilda	50-59	C	7	4					4	
Harry	65+	A	5	3						3
Mark	65+	B	7							
Robert	65+	B	6	2						4
Rufus	65+	B, C	5				2			4

Actions matrix statement: I am an active member (e.g. attend meetings, fundraise and volunteer time) of a group engaged with societal and/or environmental issues.
Key to recruitment groups: A John Muir Award participants and course providers; **B** key informants active in sustainability issues; **C** participants active in education sector; **D** participants that did not identify with sustainability issues.
Key to age group matrix results: 0 never or unable to do this; **1** done this once in the last twelve months; **2** occasionally do this; **3** most usually do this; **4** always do this as part of normal behaviour; [**empty cell**] data not provided for this time period.
Notes: Olivia and Morven did not provide INS scores; Mark declined to complete the actions matrix.

A3.1.9 Recycling

Participant	Age	Group(s)	INS score	0-9	10-19	20-29	30-39	40-49	50-59	60-69
Sophie	18-24	A	5	3	4	4				
Wanda	18-24	B	4	4		4				
Jean	18-24	B	7			4				
Stella	18-24	B	6			3				
Sally	25-29	A	3	2	3	4				
Mabel	25-29	A	5	4		4				
Isla	25-29	B, C	6	4		4				
Iona	25-29	A, B	7	4		4				
Cara	25-29	B	4	4		4				
Ingrid	25-29	B	5	0		4				
Alice	30-39	A	5	0		0	4			
Rory	30-39	B	7	0			4			
Harriet	30-39	B	4	0			4			
Freya	30-39	B, C	3	4			4			
Stacey	30-39	D	1	2			4			
Olivia	40-49	A, B, C	-	0		0		4		
Rosie	40-49	A, B	5	3				4		
Adam	40-49	B	6	4	0			4		
Patrick	40-49	D	7					3		
Elspeth	40-49	B, C	7	0				4		
Thomas	40-49	A	7	2				4		
Andrew	40-49	B	3	3				3		
Gethin	40-49	B	7	1				4		
Morven	40-49	C	-	0				4		
Chloe	40-49	C	4	2				4		
Dawn	50-59	C	7	4					4	
Anna	50-59	B	6	2					4	
Jim	50-59	A, B	6	0					4	
Matilda	50-59	C	7	0					4	
Harry	65+	A	5	3						4
Mark	65+	B	7							
Robert	65+	B	6	2						4
Rufus	65+	B, C	5				2			4

Actions matrix statement: I recycle some rubbish.
Key to recruitment groups: A John Muir Award participants and course providers; **B** key informants active in sustainability issues; **C** participants active in education sector; **D** participants that did not identify with sustainability issues.
Key to age group matrix results: 0 never or unable to do this; **1** done this once in the last twelve months; **2** occasionally do this; **3** most usually do this; **4** always do this as part of normal behaviour; [**empty cell**] data not provided for this time period.
Notes: Olivia and Morven did not provide INS scores; Mark declined to complete the actions matrix.

A3.1.10 Local and fair trade purchasing

Participant	Age	Group(s)	INS score	0-9	10-19	20-29	30-39	40-49	50-59	60-69
Sophie	18-24	A	5	0	0	0				
Wanda	18-24	B	4	2		3				
Jean	18-24	B	7			4				
Stella	18-24	B	6			1				
Sally	25-29	A	3	0	1	2				
Mabel	25-29	A	5	1		3				
Isla	25-29	B, C	6	3		3				
Iona	25-29	A, B	7	2		3				
Cara	25-29	B	4	0		2				
Ingrid	25-29	B	5	0		3				
Alice	30-39	A	5	0		0	3			
Rory	30-39	B	7	1			4			
Harriet	30-39	B	4	2			4			
Freya	30-39	B, C	3	4			4			
Stacey	30-39	D	1	3			2			
Olivia	40-49	A, B, C	-	0		3		4		
Rosie	40-49	A, B	5	0				3		
Adam	40-49	B	6	0	0			3		
Patrick	40-49	D	7					0		
Elspeth	40-49	B, C	7	3				3		
Thomas	40-49	A	7	2				3		
Andrew	40-49	B	3	0				3		
Gethin	40-49	B	7	3				4		
Morven	40-49	C	-	0				3		
Chloe	40-49	C	4	2				3		
Dawn	50-59	C	7	1		4			3	
Anna	50-59	B	6	2					4	
Jim	50-59	A, B	6	1					4	
Matilda	50-59	C	7	0					4	
Harry	65+	A	5	2						2
Mark	65+	B	7							
Robert	65+	B	6	3						4
Rufus	65+	B, C	5				3			3

Actions matrix statement: I purchase local and/ or fair trade goods.
Key to recruitment groups: A John Muir Award participants and course providers; **B** key informants active in sustainability issues; **C** participants active in education sector; **D** participants that did not identify with sustainability issues.
Key to age group matrix results: 0 never or unable to do this; **1** done this once in the last twelve months; **2** occasionally do this; **3** most usually do this; **4** always do this as part of normal behaviour; [**empty cell**] data not provided for this time period.
Notes: Olivia and Morven did not provide INS scores; Mark declined to complete the actions matrix.

A3.1.11 Donating

Participant	Age	Group(s)	INS score	0-9	10-19	20-29	30-39	40-49	50-59	60-69
Sophie	18-24	A	5	0	0	0				
Wanda	18-24	B	4	4		0				
Jean	18-24	B	7			2				
Stella	18-24	B	6			0				
Sally	25-29	A	3	3	0	4				
Mabel	25-29	A	5	4		4				
Isla	25-29	B, C	6	0		3				
Iona	25-29	A, B	7	2		2				
Cara	25-29	B	4	0		0				
Ingrid	25-29	B	5	3		0				
Alice	30-39	A	5	2		1	4			
Rory	30-39	B	7	2			4			
Harriet	30-39	B	4	0			4			
Freya	30-39	B, C	3	4			4			
Stacey	30-39	D	1	4			4			
Olivia	40-49	A, B, C	-	0		0		4		
Rosie	40-49	A, B	5	0				2		
Adam	40-49	B	6	3	0			4		
Patrick	40-49	D	7					0		
Elspeth	40-49	B, C	7	0				4		
Thomas	40-49	A	7	2				4		
Andrew	40-49	B	3	2				3		
Gethin	40-49	B	7	2				4		
Morven	40-49	C	-	0				0		
Chloe	40-49	C	4	2				2		
Dawn	50-59	C	7	4		4			3	
Anna	50-59	B	6	3					4	
Jim	50-59	A, B	6	0					3	
Matilda	50-59	C	7	4					4	
Harry	65+	A	5	0						2
Mark	65+	B	7							
Robert	65+	B	6	3						4
Rufus	65+	B, C	5				4			4

Actions matrix statement: I donate some money to organisations engaged with societal and/ or environmental issues.
Key to recruitment groups: A John Muir Award participants and course providers; **B** key informants active in sustainability issues; **C** participants active in education sector; **D** participants that did not identify with sustainability issues.
Key to age group matrix results: 0 never or unable to do this; **1** done this once in the last twelve months; **2** occasionally do this; **3** most usually do this; **4** always do this as part of normal behaviour; [**empty cell**] data not provided for this time period.
Notes: Olivia and Morven did not provide INS scores; Mark declined to complete the actions matrix.

A3.1.12 Writing to political representatives

Participant	Age	Group(s)	INS score	0-9	10-19	20-29	30-39	40-49	50-59	60-69
Sophie	18-24	A	5	2	1	2				
Wanda	18-24	B	4	2		0				
Jean	18-24	B	7			1				
Stella	18-24	B	6			0				
Sally	25-29	A	3	0	0	2				
Mabel	25-29	A	5	3		3				
Isla	25-29	B, C	6	0		2				
Iona	25-29	A, B	7	1		2				
Cara	25-29	B	4	0		2				
Ingrid	25-29	B	5	0		1				
Alice	30-39	A	5	2		0	0			
Rory	30-39	B	7	0			3			
Harriet	30-39	B	4	0			1			
Freya	30-39	B, C	3	1			0			
Stacey	30-39	D	1	0			0			
Olivia	40-49	A, B, C	-	0		0		0		
Rosie	40-49	A, B	5	1				1		
Adam	40-49	B	6	3	0			3		
Patrick	40-49	D	7					0		
Elspeth	40-49	B, C	7	0				3		
Thomas	40-49	A	7	2				3		
Andrew	40-49	B	3	0				2		
Gethin	40-49	B	7	1				2		
Morven	40-49	C	-	3				0		
Chloe	40-49	C	4	2				2		
Dawn	50-59	C	7	4		2			0	
Anna	50-59	B	6	0					2	
Jim	50-59	A, B	6	0					2	
Matilda	50-59	C	7	0					2	
Harry	65+	A	5	0						0
Mark	65+	B	7							
Robert	65+	B	6	3						3
Rufus	65+	B, C	5				0			2

Actions matrix statement: I write to political representatives (e.g. MSP, MP, MEP, Councillor etc.) on community, societal and/or environmental issues.

Key to recruitment groups: A John Muir Award participants and course providers; **B** key informants active in sustainability issues; **C** participants active in education sector; **D** participants that did not identify with sustainability issues.

Key to age group matrix results: 0 never or unable to do this; **1** done this once in the last twelve months; **2** occasionally do this; **3** most usually do this; **4** always do this as part of normal behaviour; [**empty cell**] data not provided for this time period.

Notes: Olivia and Morven did not provide INS scores; Mark declined to complete the actions matrix.

A3.2 Tables illustrating actions matrix data organised by decade

A3.2.1 Composting

Participant	Age	Group(s)	INS score	50s	60s	70s	80s	90s	00s	10s
Sophie	18-24	A	5					4	4	4
Wanda	18-24	B	4					4		4
Jean	18-24	B	7							4
Stella	18-24	B	6							2
Sally	25-29	A	3					2	0	0
Mabel	25-29	A	5					4		0
Isla	25-29	B, C	6					4		3
Iona	25-29	A, B	7					4		4
Cara	25-29	B	4					4		4
Ingrid	25-29	B	5					0		2
Alice	30-39	A	5				3		0	3
Rory	30-39	B	7				0			2
Harriet	30-39	B	4				3			1
Freya	30-39	B, C	3				2			4
Stacey	30-39	D	1				0			1
Olivia	40-49	A, B, C	-			4		0		4
Rosie	40-49	A, B	5			4				4
Adam	40-49	B	6			4	0			4
Patrick	40-49	D	7							3
Elspeth	40-49	B, C	7			3				4
Thomas	40-49	A	7			4				4
Andrew	40-49	B	3			1				4
Gethin	40-49	B	7			0				3
Morven	40-49	C	-			0				4
Chloe	40-49	C	4			3				4
Dawn	50-59	C	7		4		0			4
Anna	50-59	B	6		0					4
Jim	50-59	A, B	6		0					4
Matilda	50-59	C	7		4					4
Harry	65+	A	5	0						4
Mark	65+	B	7							
Robert	65+	B	6	2						4
Rufus	65+	B, C	5				0			4

Actions matrix statement: I compost some waste.
Key to recruitment groups: A John Muir Award participants and course providers; **B** key informants active in sustainability issues; **C** participants active in education sector; **D** participants that did not identify with sustainability issues.
Key to decadal matrix results: 0 never or unable to do this; **1** done this once in the last twelve months; **2** occasionally do this; **3** most usually do this; **4** always do this as part of normal behaviour; [**empty cell**] data not provided for this time period.
Notes: Olivia and Morven did not provide INS scores; Mark declined to complete the actions matrix.

A3.2.2 Environmentally-friendly cleaning

Participant	Age	Group(s)	INS score	50s	60s	70s	80s	90s	00s	10s
Sophie	18-24	A	5					0	3	4
Wanda	18-24	B	4					2		1
Jean	18-24	B	7							4
Stella	18-24	B	6							2
Sally	25-29	A	3					0	0	2
Mabel	25-29	A	5					0		4
Isla	25-29	B, C	6					1		3
Iona	25-29	A, B	7					1		4
Cara	25-29	B	4					0		0
Ingrid	25-29	B	5					2		3
Alice	30-39	A	5				0		0	2
Rory	30-39	B	7				0			4
Harriet	30-39	B	4				0			4
Freya	30-39	B, C	3				3			4
Stacey	30-39	D	1				0			0
Olivia	40-49	A, B, C	-			0		3		4
Rosie	40-49	A, B	5			2				3
Adam	40-49	B	6			0	0			2
Patrick	40-49	D	7							0
Elspeth	40-49	B, C	7			0				3
Thomas	40-49	A	7			0				3
Andrew	40-49	B	3			1				4
Gethin	40-49	B	7			0				3
Morven	40-49	C	-			0				4
Chloe	40-49	C	4			2				3
Dawn	50-59	C	7		4		4			1
Anna	50-59	B	6		2					4
Jim	50-59	A, B	6		0					4
Matilda	50-59	C	7		0					4
Harry	65+	A	5	0						2
Mark	65+	B	7							
Robert	65+	B	6	0						4
Rufus	65+	B, C	5				2			4

Actions matrix statement: I purchase environmentally-friendly cleaning products.
Key to recruitment groups: A John Muir Award participants and course providers; **B** key informants active in sustainability issues; **C** participants active in education sector; **D** participants that did not identify with sustainability issues.
Key to decadal matrix results: 0 never or unable to do this; **1** done this once in the last twelve months; **2** occasionally do this; **3** most usually do this; **4** always do this as part of normal behaviour; [**empty cell**] data not provided for this time period.
Notes: Olivia and Morven did not provide INS scores; Mark declined to complete the actions matrix.

A3.2.3 Ethical produce

Participant	Age	Group(s)	INS score	50s	60s	70s	80s	90s	00s	10s
Sophie	18-24	A	5					2	3	4
Wanda	18-24	B	4					3		3
Jean	18-24	B	7							4
Stella	18-24	B	6							4
Sally	25-29	A	3					2	0	3
Mabel	25-29	A	5					3		4
Isla	25-29	B, C	6					4		3
Iona	25-29	A, B	7					3		3
Cara	25-29	B	4					3		3
Ingrid	25-29	B	5					2		4
Alice	30-39	A	5				3		4	4
Rory	30-39	B	7				0			4
Harriet	30-39	B	4				2			4
Freya	30-39	B, C	3				4			4
Stacey	30-39	D	1				0			2
Olivia	40-49	A, B, C	-			0		3		4
Rosie	40-49	A, B	5			2				4
Adam	40-49	B	6			2	0			4
Patrick	40-49	D	7							0
Elspeth	40-49	B, C	7			0				4
Thomas	40-49	A	7			2				3
Andrew	40-49	B	3			0				4
Gethin	40-49	B	7			0				4
Morven	40-49	C	-			0				3
Chloe	40-49	C	4			2				3
Dawn	50-59	C	7		4		0			4
Anna	50-59	B	6		0					4
Jim	50-59	A, B	6		0					3
Matilda	50-59	C	7		0					4
Harry	65+	A	5	0						4
Mark	65+	B	7							
Robert	65+	B	6	2						4
Rufus	65+	B, C	5				0			3

Actions matrix statement: I purchase animal products produced in an ethical manner (e.g. free-range eggs).
Key to recruitment groups: A John Muir Award participants and course providers; **B** key informants active in sustainability issues; **C** participants active in education sector; **D** participants that did not identify with sustainability issues.
Key to decadal matrix results: 0 never or unable to do this; **1** done this once in the last twelve months; **2** occasionally do this; **3** most usually do this; **4** always do this as part of normal behaviour; [**empty cell**] data not provided for this time period.
Notes: Olivia and Morven did not provide INS scores; Mark declined to complete the actions matrix.

A3.2.4 Reading

Participant	Age	Group(s)	INS score	50s	60s	70s	80s	90s	00s	10s
Sophie	18-24	A	5					2	4	4
Wanda	18-24	B	4					2		4
Jean	18-24	B	7							4
Stella	18-24	B	6							2
Sally	25-29	A	3					0	1	2
Mabel	25-29	A	5					3		3
Isla	25-29	B, C	6					3		4
Iona	25-29	A, B	7					2		4
Cara	25-29	B	4					1		4
Ingrid	25-29	B	5					1		4
Alice	30-39	A	5				3		2	4
Rory	30-39	B	7				2			4
Harriet	30-39	B	4				0			3
Freya	30-39	B, C	3				4			4
Stacey	30-39	D	1				0			4
Olivia	40-49	A, B, C	-			0		1		4
Rosie	40-49	A, B	5			3				4
Adam	40-49	B	6			2	2			3
Patrick	40-49	D	7							2
Elspeth	40-49	B, C	7			2				4
Thomas	40-49	A	7			4				4
Andrew	40-49	B	3			2				4
Gethin	40-49	B	7			1				3
Morven	40-49	C	-			3				3
Chloe	40-49	C	4			3				3
Dawn	50-59	C	7		4		4			4
Anna	50-59	B	6		0					4
Jim	50-59	A, B	6		3					4
Matilda	50-59	C	7		4					4
Harry	65+	A	5	3						3
Mark	65+	B	7							
Robert	65+	B	6	2						4
Rufus	65+	B, C	5				3			4

Actions matrix statement: I read about community, societal and/ or environmental issues.
Key to recruitment groups: A John Muir Award participants and course providers; **B** key informants active in sustainability issues; **C** participants active in education sector; **D** participants that did not identify with sustainability issues.
Key to decadal matrix results: 0 never or unable to do this; **1** done this once in the last twelve months; **2** occasionally do this; **3** most usually do this; **4** always do this as part of normal behaviour; [**empty cell**] data not provided for this time period.
Notes: Olivia and Morven did not provide INS scores; Mark declined to complete the actions matrix.

A3.2.5 Ethical finance

Participant	Age	Group(s)	INS score	50s	60s	70s	80s	90s	00s	10s
Sophie	18-24	A	5					0	0	0
Wanda	18-24	B	4					1		0
Jean	18-24	B	7							0
Stella	18-24	B	6							0
Sally	25-29	A	3					0	0	0
Mabel	25-29	A	5					0		4
Isla	25-29	B, C	6					0		0
Iona	25-29	A, B	7					0		2
Cara	25-29	B	4					0		1
Ingrid	25-29	B	5					0		1
Alice	30-39	A	5				0		0	2
Rory	30-39	B	7				0			4
Harriet	30-39	B	4				0			3
Freya	30-39	B, C	3				3			3
Stacey	30-39	D	1				0			0
Olivia	40-49	A, B, C	-			0		0		3
Rosie	40-49	A, B	5			0				4
Adam	40-49	B	6			0	0			3
Patrick	40-49	D	7							0
Elspeth	40-49	B, C	7			0				3
Thomas	40-49	A	7			0				3
Andrew	40-49	B	3			0				3
Gethin	40-49	B	7			1				2
Morven	40-49	C	-			0				0
Chloe	40-49	C	4			0				2
Dawn	50-59	C	7		0		3			3
Anna	50-59	B	6		0					3
Jim	50-59	A, B	6		0					4
Matilda	50-59	C	7		0					4
Harry	65+	A	5	0						2
Mark	65+	B	7							
Robert	65+	B	6	0						2
Rufus	65+	B, C	5				0			3

Actions matrix statement: I purchase ethically responsible financial products (e.g. energy, insurance, and banking).
Key to recruitment groups: A John Muir Award participants and course providers; **B** key informants active in sustainability issues; **C** participants active in education sector; **D** participants that did not identify with sustainability issues.
Key to decadal matrix results: 0 never or unable to do this; **1** done this once in the last twelve months; **2** occasionally do this; **3** most usually do this; **4** always do this as part of normal behaviour; [**empty cell**] data not provided for this time period.
Notes: Olivia and Morven did not provide INS scores; Mark declined to complete the actions matrix.

A3.2.6 Demonstrating and activism

Participant	Age	Group(s)	INS score	50s	60s	70s	80s	90s	00s	10s
Sophie	18-24	A	5					2	2	2
Wanda	18-24	B	4					2		2
Jean	18-24	B	7							2
Stella	18-24	B	6							0
Sally	25-29	A	3					0	1	2
Mabel	25-29	A	5					2		3
Isla	25-29	B, C	6					0		1
Iona	25-29	A, B	7					1		1
Cara	25-29	B	4					2		2
Ingrid	25-29	B	5					0		1
Alice	30-39	A	5				0		0	0
Rory	30-39	B	7				0			2
Harriet	30-39	B	4				0			1
Freya	30-39	B, C	3				3			2
Stacey	30-39	D	1				0			0
Olivia	40-49	A, B, C	-			0		0		2
Rosie	40-49	A, B	5			0				1
Adam	40-49	B	6			3	3			4
Patrick	40-49	D	7							0
Elspeth	40-49	B, C	7			0				2
Thomas	40-49	A	7			2				3
Andrew	40-49	B	3			2				0
Gethin	40-49	B	7			0				1
Morven	40-49	C	-			2				0
Chloe	40-49	C	4			2				2
Dawn	50-59	C	7		0		4			0
Anna	50-59	B	6		0					2
Jim	50-59	A, B	6		0					2
Matilda	50-59	C	7		0					2
Harry	65+	A	5	0						0
Mark	65+	B	7							
Robert	65+	B	6	0						2
Rufus	65+	B, C	5				2			2

Actions matrix statement: I take part in peaceful demonstrations, protests and/ or other forms of lawful activism.
Key to recruitment groups: A John Muir Award participants and course providers; **B** key informants active in sustainability issues; **C** participants active in education sector; **D** participants that did not identify with sustainability issues.
Key to decadal matrix results: 0 never or unable to do this; **1** done this once in the last twelve months; **2** occasionally do this; **3** most usually do this; **4** always do this as part of normal behaviour; [**empty cell**] data not provided for this time period.
Notes: Olivia and Morven did not provide INS scores; Mark declined to complete the actions matrix.

A3.2.7 Travel

Participant	Age	Group(s)	INS score	50s	60s	70s	80s	90s	00s	10s
Sophie	18-24	A	5					4	4	4
Wanda	18-24	B	4					3		4
Jean	18-24	B	7							4
Stella	18-24	B	6							4
Sally	25-29	A	3					2	3	4
Mabel	25-29	A	5					2		3
Isla	25-29	B, C	6					3		3
Iona	25-29	A, B	7					2		3
Cara	25-29	B	4					2		4
Ingrid	25-29	B	5					0		4
Alice	30-39	A	5				3		2	2
Rory	30-39	B	7				0			3
Harriet	30-39	B	4				2			4
Freya	30-39	B, C	3				3			3
Stacey	30-39	D	1				4			4
Olivia	40-49	A, B, C	-			0		3		1
Rosie	40-49	A, B	5			0				3
Adam	40-49	B	6			4	4			4
Patrick	40-49	D	7							3
Elspeth	40-49	B, C	7			3				3
Thomas	40-49	A	7			3				3
Andrew	40-49	B	3			2				3
Gethin	40-49	B	7			3				3
Morven	40-49	C	-			0				3
Chloe	40-49	C	4			4				3
Dawn	50-59	C	7		2		4			3
Anna	50-59	B	6		4					3
Jim	50-59	A, B	6		0					4
Matilda	50-59	C	7		4					0
Harry	65+	A	5	4						2
Mark	65+	B	7							
Robert	65+	B	6	2						3
Rufus	65+	B, C	5				3			4

Actions matrix statement: I walk, cycle, use public transport or car share.
Key to recruitment groups: A John Muir Award participants and course providers; **B** key informants active in sustainability issues; **C** participants active in education sector; **D** participants that did not identify with sustainability issues.
Key to decadal matrix results: 0 never or unable to do this; **1** done this once in the last twelve months; **2** occasionally do this; **3** most usually do this; **4** always do this as part of normal behaviour; [**empty cell**] data not provided for this time period.
Notes: Olivia and Morven did not provide INS scores; Mark declined to complete the actions matrix.

A3.2.8 Active member of an organisation

Participant	Age	Group(s)	INS score	50s	60s	70s	80s	90s	00s	10s
Sophie	18-24	A	5					1	2	2
Wanda	18-24	B	4					3		4
Jean	18-24	B	7							4
Stella	18-24	B	6							4
Sally	25-29	A	3					0	4	4
Mabel	25-29	A	5					0		4
Isla	25-29	B, C	6					4		2
Iona	25-29	A, B	7					3		4
Cara	25-29	B	4					0		3
Ingrid	25-29	B	5					0		4
Alice	30-39	A	5				2		0	4
Rory	30-39	B	7				2			2
Harriet	30-39	B	4				0			0
Freya	30-39	B, C	3				2			3
Stacey	30-39	D	1				4			4
Olivia	40-49	A, B, C	-			0		0		0
Rosie	40-49	A, B	5			0				3
Adam	40-49	B	6			4	4			4
Patrick	40-49	D	7							0
Elspeth	40-49	B, C	7			3				0
Thomas	40-49	A	7			4				3
Andrew	40-49	B	3			0				3
Gethin	40-49	B	7			0				0
Morven	40-49	C	-			0				0
Chloe	40-49	C	4			3				1
Dawn	50-59	C	7		4		4			3
Anna	50-59	B	6		3					3
Jim	50-59	A, B	6		0					4
Matilda	50-59	C	7		4					4
Harry	65+	A	5	3						3
Mark	65+	B	7							
Robert	65+	B	6	2						4
Rufus	65+	B, C	5				2			4

Actions matrix statement: I am an active member (e.g. attend meetings, fundraise and volunteer time) of a group engaged with societal and/or environmental issues.
Key to recruitment groups: A John Muir Award participants and course providers; **B** key informants active in sustainability issues; **C** participants active in education sector; **D** participants that did not identify with sustainability issues.
Key to decadal matrix results: 0 never or unable to do this; **1** done this once in the last twelve months; **2** occasionally do this; **3** most usually do this; **4** always do this as part of normal behaviour; [**empty cell**] data not provided for this time period.
Notes: Olivia and Morven did not provide INS scores; Mark declined to complete the actions matrix.

A3.2.9 Recycling

Participant	Age	Group(s)	INS score	50s	60s	70s	80s	90s	00s	10s
Sophie	18-24	A	5					3	4	4
Wanda	18-24	B	4					4		4
Jean	18-24	B	7							4
Stella	18-24	B	6							3
Sally	25-29	A	3					2	3	4
Mabel	25-29	A	5					4		4
Isla	25-29	B, C	6					4		4
Iona	25-29	A, B	7					4		4
Cara	25-29	B	4					4		4
Ingrid	25-29	B	5					0		4
Alice	30-39	A	5				0		0	4
Rory	30-39	B	7				0			4
Harriet	30-39	B	4				0			4
Freya	30-39	B, C	3				4			4
Stacey	30-39	D	1				2			4
Olivia	40-49	A, B, C	-			0		0		4
Rosie	40-49	A, B	5			3				4
Adam	40-49	B	6			4	0			4
Patrick	40-49	D	7							3
Elspeth	40-49	B, C	7			0				4
Thomas	40-49	A	7			2				4
Andrew	40-49	B	3			3				3
Gethin	40-49	B	7			1				4
Morven	40-49	C	-			0				4
Chloe	40-49	C	4			2				4
Dawn	50-59	C	7		4					4
Anna	50-59	B	6		2					4
Jim	50-59	A, B	6		0					4
Matilda	50-59	C	7		0					4
Harry	65+	A	5	3						4
Mark	65+	B	7							
Robert	65+	B	6	2						4
Rufus	65+	B, C	5				2			4

Actions matrix statement: I recycle some rubbish.

Key to recruitment groups: A John Muir Award participants and course providers; **B** key informants active in sustainability issues; **C** participants active in education sector; **D** participants that did not identify with sustainability issues.

Key to decadal matrix results: 0 never or unable to do this; **1** done this once in the last twelve months; **2** occasionally do this; **3** most usually do this; **4** always do this as part of normal behaviour; [**empty cell**] data not provided for this time period.

Notes: Olivia and Morven did not provide INS scores; Mark declined to complete the actions matrix.

A3.2.10 Local and fair trade purchasing

Participant	Age	Group(s)	INS score	50s	60s	70s	80s	90s	00s	10s
Sophie	18-24	A	5					0	0	0
Wanda	18-24	B	4					2		3
Jean	18-24	B	7							4
Stella	18-24	B	6							1
Sally	25-29	A	3					0	1	2
Mabel	25-29	A	5					1		3
Isla	25-29	B, C	6					3		3
Iona	25-29	A, B	7					2		3
Cara	25-29	B	4					0		2
Ingrid	25-29	B	5					0		3
Alice	30-39	A	5				0		0	3
Rory	30-39	B	7				1			4
Harriet	30-39	B	4				2			4
Freya	30-39	B, C	3				4			4
Stacey	30-39	D	1				3			2
Olivia	40-49	A, B, C	-			0		3		4
Rosie	40-49	A, B	5			0				3
Adam	40-49	B	6			0	0			3
Patrick	40-49	D	7							0
Elspeth	40-49	B, C	7			3				3
Thomas	40-49	A	7			2				3
Andrew	40-49	B	3			0				3
Gethin	40-49	B	7			3				4
Morven	40-49	C	-			0				3
Chloe	40-49	C	4			2				3
Dawn	50-59	C	7		1		4			3
Anna	50-59	B	6		2					4
Jim	50-59	A, B	6		1					4
Matilda	50-59	C	7		0					4
Harry	65+	A	5	2						2
Mark	65+	B	7							
Robert	65+	B	6	3						4
Rufus	65+	B, C	5				3			3

Actions matrix statement: I purchase local and/ or fair trade goods.
Key to recruitment groups: A John Muir Award participants and course providers; **B** key informants active in sustainability issues; **C** participants active in education sector; **D** participants that did not identify with sustainability issues.
Key to decadal matrix results: 0 never or unable to do this; **1** done this once in the last twelve months; **2** occasionally do this; **3** most usually do this; **4** always do this as part of normal behaviour; [**empty cell**] data not provided for this time period.
Notes: Olivia and Morven did not provide INS scores; Mark declined to complete the actions matrix.

A3.2.11 Donating

Participant	Age	Group(s)	INS score	50s	60s	70s	80s	90s	00s	10s
Sophie	18-24	A	5					0	0	0
Wanda	18-24	B	4					4		0
Jean	18-24	B	7							2
Stella	18-24	B	6							0
Sally	25-29	A	3					3	0	4
Mabel	25-29	A	5					4		4
Isla	25-29	B, C	6					0		3
Iona	25-29	A, B	7					2		2
Cara	25-29	B	4					0		0
Ingrid	25-29	B	5					3		0
Alice	30-39	A	5				2		1	4
Rory	30-39	B	7				2			4
Harriet	30-39	B	4				0			4
Freya	30-39	B, C	3				4			4
Stacey	30-39	D	1				4			4
Olivia	40-49	A, B, C	-			0		0		4
Rosie	40-49	A, B	5			0				2
Adam	40-49	B	6			3	0			4
Patrick	40-49	D	7							0
Elspeth	40-49	B, C	7			0				4
Thomas	40-49	A	7			2				4
Andrew	40-49	B	3			2				3
Gethin	40-49	B	7			2				4
Morven	40-49	C	-			0				0
Chloe	40-49	C	4			2				2
Dawn	50-59	C	7		4		4			3
Anna	50-59	B	6		3					4
Jim	50-59	A, B	6		0					3
Matilda	50-59	C	7		4					4
Harry	65+	A	5	0						2
Mark	65+	B	7							
Robert	65+	B	6	3						4
Rufus	65+	B, C	5				4			4

Actions matrix statement: I donate some money to organisations engaged with societal and/ or environmental issues.
Key to recruitment groups: A John Muir Award participants and course providers; **B** key informants active in sustainability issues; **C** participants active in education sector; **D** participants that did not identify with sustainability issues.
Key to decadal matrix results: 0 never or unable to do this; **1** done this once in the last twelve months; **2** occasionally do this; **3** most usually do this; **4** always do this as part of normal behaviour; [**empty cell**] data not provided for this time period.
Notes: Olivia and Morven did not provide INS scores; Mark declined to complete the actions matrix.

A3.2.12 Writing to political representatives

Participant	Age	Group(s)	INS score	50s	60s	70s	80s	90s	00s	10s
Sophie	18-24	A	5					2	1	2
Wanda	18-24	B	4					2		0
Jean	18-24	B	7							1
Stella	18-24	B	6							0
Sally	25-29	A	3					0	0	2
Mabel	25-29	A	5					3		3
Isla	25-29	B, C	6					0		2
Iona	25-29	A, B	7					1		2
Cara	25-29	B	4					0		2
Ingrid	25-29	B	5					0		1
Alice	30-39	A	5				2		0	0
Rory	30-39	B	7				0			3
Harriet	30-39	B	4				0			1
Freya	30-39	B, C	3				1			0
Stacey	30-39	D	1				0			0
Olivia	40-49	A, B, C	-			0		0		0
Rosie	40-49	A, B	5			1				1
Adam	40-49	B	6			3	0			3
Patrick	40-49	D	7							0
Elspeth	40-49	B, C	7			0				3
Thomas	40-49	A	7			2				3
Andrew	40-49	B	3			0				2
Gethin	40-49	B	7			1				2
Morven	40-49	C	-			3				0
Chloe	40-49	C	4			2				2
Dawn	50-59	C	7		4		2			0
Anna	50-59	B	6		0					2
Jim	50-59	A, B	6		0					2
Matilda	50-59	C	7		0					2
Harry	65+	A	5	0						0
Mark	65+	B	7							
Robert	65+	B	6	3						3
Rufus	65+	B, C	5				0			2

Actions matrix statement: I write to political representatives (e.g. MSP, MP, MEP, Councillor etc.) on community, societal and/or environmental issues.

Key to recruitment groups: A John Muir Award participants and course providers; **B** key informants active in sustainability issues; **C** participants active in education sector; **D** participants that did not identify with sustainability issues.

Key to decadal matrix results: 0 never or unable to do this; **1** done this once in the last twelve months; **2** occasionally do this; **3** most usually do this; **4** always do this as part of normal behaviour; [**empty cell**] data not provided for this time period.

Notes: Olivia and Morven did not provide INS scores; Mark declined to complete the actions matrix.